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THE

Chicago Medical Journal.

J. ADAMS ALLEN, M.D., LL.D., WALTER HAY, M.D.,
EDITORS.

TWELVE TIMES A YEAR.

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Original Communications.

ARTICLE I.

THE MEDICAL EXPERT AND MEDICAL EVIDENCE.

BY M. A. McCLELLAND, M.D., KNOXVILLE, ILL.

(Continued from page 28.)

WHO ARE MEDICAL EXPERTS?

This is a vexatious question. As questions in medicine are the most common, and frequently the most important, involving matters of property, reputation, and, indeed, life and death, its proper solution is of the greatest importance. In the first place, Who are physicians? In some countries the question is answered by the statutes. In the United States, "proof that one practices as a physician is *prima facie* evidence of his professional character," (*Sutton* v. *Tracy*, 1 Mich. 243), but only as "to the business in which the plaintiff was engaged, rather than to the degree of skill with which he exercised it." That a person practices medicine is no proof of *skill* is now being recognized by statutory enactments in

various States, requiring persons practicing medicine to be in possession of some evidence of their qualification, in the form of a diploma or license from an examining board of physicians. It will be seen, however, from what has been before said, that the possession of these evidences of capability to practice does not confer *ability* to act creditably as an expert.

"In forensic-psychology an expert must be skilled (1) in law, sufficient to determine what is the 'responsibility' which is to be the object of the contested capacity; (2) psychology, so as to be able to speak analytically as to the properties of the human mind; (3) medicine, so far as concerns the treatment of the insane, so as to speak inductively on the same subject. If either of these factors is wanting, a witness cannot be technically an expert." (Wharton and Stille, Med. Jurisp., Book 1, § 275.) This is a very high standard, and practically is not observed. Courts have modified it, and in doing so have fallen into the other extreme, permitting many persons to testify who are not competent to do so. They ignore the fact that he only is an *expert* who is *instructed* in any science, art or trade, by *study* and *experience*. See *Fairchild* v. *Blascomb*, 35 Vt. 390, where it was held that *nurses*, accustomed to attend the sick, were *competent* experts in respect to mental conditions. In *State* v. *Hinkle*, 6 Iowa, 380, it was held that an ordinary physician, at least not an analytical chemist, was capable of analyzing the contents of a stomach of one supposed to be poisoned. Similar rulings may be found in other States. Why should they be "highly regarded"?

In cases of insanity, however, the rule for requiring that experts shall have made the subject of mental disease a special study, is pretty generally insisted upon, especially in the higher courts. In many of our States, patients, supposed to be insane, cannot be committed to hospitals or other places of confinement, without a preliminary examination before one of the lower courts. In this examination, one or more physicians are summoned

to appear to act as juror or witness. Ordinarily physicians are exempt from jury duty; in this case the duty is imperative. The necessity for this judicial investigation, *ab initio*, has arisen from a suspicion that sane persons have been thus imprisoned, so that some dishonest relative might be better able to carry on some scheme of iniquity. This suspicion is kept alive in the minds of the community by such sensational efforts as are manifested in the "*Terrible Temptation*" of Charles Reade. I was about to mention, also, "*Behind the Bars*," but I am not acquainted with its tendencies. Physicians will readily call to mind the "sensation" created a few years ago by the publication of a book that purported to give the history of a number of persons unjustly confined in one of our State institutions. It is needless to state that the charges made in it had no foundation in fact.

The true preparation for this duty, as Dr. Ray remarks, (Med. Jurisp. of Insanity), "lies in observation and study of mental phenomena, as strikingly exhibited in real life." A large acquaintance with mental phenomena, in a sound as well as unsound state, a comprehensive knowledge of the various faculties of the mind, is desirable, as being cumulative, but this the ordinary physician, pressed by other and more frequently occurring duties, cannot acquire, so he must be content to occupy the position of an ordinary witness, declining to pass upon graver questions, on the plea of want of necessary study. In *Baxter* v. *Abbott*, 7 Gray, 71, it was held, "that a physician who had lived in the neighborhood of the testator, and had at times been his medical adviser, but who never had had charge of insane persons, except to advise that they be removed to an asylum, was competent to give an opinion as to the sanity of such testator." Again, it has been held, "that a physician who had not made insanity a special study, was not competent to testify as an *expert* in insanity upon a hypothetical case submitted to him, nor to give his opinion whether the prisoner, who had lived near him, and whom he had

long known, but who had never been his patient, was competent to apply the rules of right and wrong." (*Com.* v. *Rich*, 14 Gray, 335.) In *State* v. *Windsor*, 5 Harr. 512, it was held, "that medical men in general were competent to express an opinion, on hearing all the evidence, as to the state of a prisoner's mind." On the other hand, (*Fairfield* v. *Bascomb*, *supra*), it seems that a physician "who had for more than thirty years given especial attention to the treatment of the insane, could not be admitted to testify, as an *expert*, as to the mental capacity of a person not previously insane, but in the last stages of disease."

"A singular decision was lately rendered in the Supreme Court of Massachusetts. The case under consideration was the pollution of Mystic Pond, the water supply of Charleston, by the influx of tannery refuse. Three chemical experts gave their testimony, among them Prof. Benj. Silliman. But Prof. Silliman, besides being a chemist, holds the degree of M.D., and his testimony in the latter capacity, as to the effect of decaying organic matter in water, on the health of those who drink it, was offered in court. It was, however, refused, on the ground that Dr. S. was not a practicing physician. The absurdity of the ruling becomes all the more apparent when it is known that Dr. S. has, for many years, been a professor of medical chemistry." (Galaxy.)

It is evident that the courts have not succeeded in establishing a positive rule as to who are experts.

A writer in the American Law Review, April, 1871, to whom I am indebted for many of the preceding citations, remarks farther:

"Titles, diplomas, occupations, and professional reputations, have no judicial weight or meaning, and are of use only so far as they serve as guides in particular cases. It is purely matter of discretion how much importance shall be attached to them."

He gives as a reason for these adverse rulings, that "Courts are continually forced to decide, on the spur of

the moment, upon the pretensions and claims to credit, of persons offered as *experts*, often upon the most abstruse and difficult subjects."

In this day of "Eclectic" Universities, and degrees *in absentia*, I would suggest—believing that a *diploma* is some evidence of attainments—that the following questions be propounded the witness, under oath: Are you a graduate in medicine? and if so, did you obtain your degree by following out the course of study required by the majority of medical schools? and if so, were you examined upon those studies by the gentlemen whose names are upon your diploma?

The Hon. Emory Washburn, in a paper read before the American Academy of Arts and Sciences, (American Law Review, vol. 1, p. 61), says: "When a man is offered to testify as an expert, it is the duty and province of the judge to determine, upon evidence and inquiry, whether he answers to that description or not. Now, what is wanted in an expert is, first, that he should be sufficiently acquainted with the subject matter upon which he is called, to *know* what its laws are; and, in the second place, he should be honest and impartial enough to state his opinion or judgment upon these fully and fairly, so far as it can be done, and how they bear upon the issue to be tried. He should not be selected as the witness of this party or that, or to represent this view or that, of the matter in controversy. He should be like an arbitrator or a commissioner, who, standing indifferent between the parties, is to hear the facts which they have to offer; and then, by applying his own knowledge as a man of science, to form an opinion, and declare it, as a guide for the court and jury in forming a final judgment in the cause.

"I would, therefore, have experts selected by the court, as they appoint auditors to determine matters of account; or commissioners to take testimony, or to make partition of estates; or other like agents and instrumentalities in the administration of justice. Under such a rule, there

would not, ordinarily, be any great difficulty in the parties themselves selecting who should be thus employed. And if there was, the very fact that one party or the other insisted upon a favorite witness, would be sufficient to put the court upon their guard in allowing him to act as such. The subjects upon which experts may be called are as numerous as the departments of business, and the transactions of life, in which laws and rules of action are applied. But the number of experts in any one department is ordinarily small, and easily distinguished. Who those are, in any district or region, and what are their relative character and fitness to act, can be ascertained by the court without any great difficulty, in each case as it arises. And though cases may occur where, by the selection or exclusion of one or another who may be named an expert, injustice may be done to a party, the great cause of justice will, on the whole, be vindicated, and the confidence of the public in the purity of its administration, as well as their respect for its ministers and instrumentalities, strengthened and confirmed."

Dr. Ray, (Contributions to Mental Pathology, pp. 422—424), after adducing many weighty reasons why experts should not be appointed by the Executive, says, in regard to their being selected by the court, he sees nothing in favor of *this* course, "beyond the chance of securing a higher degree of honesty and competence." Farther along he admits that the appointment of an expert by the Executive has its advantages, viz: "Skilled testimony on any subject, thus obtained, is free from the objections made against it as it is usually obtained. It is not given in the interest of one party or the other; it is unbiased by any pecuniary arrangements, and it escapes the damage of a cross-examination. It is the *well-matured* conclusions of a calm, deliberate, thorough investigation."

He favors the system in use in Germany and France, which is very similar to the one advocated by Professor Washburn. Dr. Ray qualifies his preference by saying:

"But it must be borne in mind that in Germany, for the most part, there is no trial by jury; and that in France a criminal case passes through its most decisive stages before it is submitted to a jury."

It has been said that neither "quacks" nor mere speculative theorists are to be received as experts. But who will draw the lines of distinction here? The Supreme Court of New York, in the case *Ex parte Paine*, 1 Hill, 665, tried to do it, and failed by not being comprehensive enough. It designated as such, "whoever offers to practice either homœopathy or allopathy, as his patients may wish;" which is very true, and yet such a person might make a very good *expert*. Why exclude him, when others are permitted, no more honest than he is? Inasmuch as the law recognizes no "schools," and it has been decided that a physician must be governed by the rules of that "school" he professes, (*Bowman* v. *Woods*, 1 Iowa, 441), it would seem that the testimony of experts, selected from one school, should not be received to impugn the professional rules and practice of practitioners of another "school." In reality there is but one "school," that whose rules require that the public "be enlightened, so that injuries may not be sustained by the unwary, from the devices and pretensions of artful empirics and imposters."

The right to object to any evidence as not proper to go to the jury, or as not being of legal credence, ought to be earnestly insisted upon. Thus, in an action for malpractice, the testimony of a "natural bone-setter" should be objected to, for the reason that a witness who swears falsely to matters of professional belief and opinion cannot be punished for perjury. Evidence in such cases does not and cannot extend beyond opinion and belief, and the cross-examination of such a witness would only tend still farther to enlist the prejudices of the jury in behalf of the "*poor plaintiff*" and "*abused*" witness. How much sanctity is there in an oath to one who is a fraud upon society, and who knows himself to be a fraud, as is the case with "bone-setters," "cancer doctors," etc.?

CIRCUMSTANTIAL EVIDENCE.

Evidence as given by medical witnesses, acting as experts, is usually circumstantial or presumptive, that is, their evidence is deduced or inferred from one or more facts which are directly proved or admitted. It would seem indeed that nearly all evidence is of this character. A witness testifies to a certain act, he describes the manner in which the action was performed, he *presumes* it was done in earnest or in a jest, that is his *opinion*, and unless he is permitted to give this opinion as a part of his evidence, he fails to convey to the minds of the jury that which is sought for in his testimony. Upon a trial where intoxication is the subject in question, it has been held, "that the appearance which indicates intoxication cannot be so perfectly described in words as to enable persons not eye-witnesses to judge with accuracy on the subject."

In a case in which a mother was indicted for the murder of her child, in giving his charge to the jury, on the subject of evidence, GIBSON, C. J., said:

"No witness has been produced who saw the act committed, and hence it is urged for the prisoner, that the evidence is only circumstantial, and consequently entitled to a very inferior degree of credit, if any credit at all. But that consequence does not necessarily follow; circumstantial evidence is, in the *abstract*, nearly, though perhaps not altogether, as strong as positive evidence; in the *concrete* it may be infinitely stronger. A fact positively sworn to by a single eye-witness, of blemished character, is not so satisfactorily proved as is a fact which is the necessary consequence of a chain of other facts sworn to by many witnesses of undoubted credibility. Indeed, I scarcely know whether there is such a thing as evidence *purely positive*. You see a man discharge a gun at another; you see the flash, you hear the report; you see the person fall a lifeless corpse, and you *infer*, from all these circumstances, that there

was a ball discharged from the gun, which entered his body and caused his death, because such is the usual and natural cause of such an effect. But you did not see the ball leave the gun, pass through the air, and enter the body of the slain; and even testimony to the fact of killing is, therefore, only inferential, or, in other words, circumstantial. It is possible no ball was in the gun; and we *infer* that there was, only because we cannot account for the death on any other supposition. In case of death from the concussion of the brain, strong doubts have been raised by physicians, founded on appearances verified by the post mortem examination, whether an accommodating apoplexy had not stepped in at the nick of time, to prevent the prisoner from killing him, after the skull had been broken in pieces. I remember to have heard it doubted in this court, whether the death of a man, whose brain oozed through a hole in the skull, was caused by the wound, or a misapplication of the dressing. To some extent, however, the proof of the cause which produced the death rested on circumstantial evidence.

"The only difference between positive and circumstantial evidence is, that the former is more immediate, and has fewer links in the chain of connection between the premises and conclusion; but there may be perjury in both.

"A man may as well swear falsely to an absolute knowledge of fact as to a number of facts, from which, if true, the fact on which the question of guilt or innocence depends must inevitably follow. No human testimony is superior to doubt; the machinery of criminal justice, like every other production of man, is necessarily imperfect; but you are not, therefore, to stop its wheels. Because men have been scalded to death or torn to pieces by the bursting of boilers, or mangled by wheels on a railroad, you are not to lay aside the steam-engine.

"Innocent men have doubtless been convicted and executed on circumstantial evidence; but innocent men have sometimes been convicted and executed on what is

called positive proof. What then? Such convictions are accidents, which must be encountered; and the innocent victims of them perished for the common good, as much as soldiers who have perished in battle. All evidence is more or less circumstantial, the difference being only in degree; and it is sufficient for the purpose, when it excludes disbelief—that is, actual and technical belief; for, he who is to pass on the question is not at liberty to disbelieve as a juror, while he believes as a man.

"It is enough that his conscience is clear. Certain cases of circumstantial proofs to be found in the books, in which innocent persons were convicted, have been pressed on your attention. Those, however, are few in number, and they occurred in a period of some hundreds of years, in a country whose criminal code made a great variety of offenses capital. The wonder is they have not been more. They are constantly resorted to, in capital trials, to frighten juries into a belief that there should be no conviction on merely circumstantial evidence. But the law exacts conviction, whenever there is *legal* evidence to show the prisoner's guilt, beyond a doubt; circumstantial evidence is legal evidence.

"If the evidence in this case convinces you that the prisoner killed her child, although there has been no eye-witness of the fact, you are bound to find her guilty. For her sake, I regret the tendency of these remarks; but it has been our duty to make them, and it will be yours to attend to them." (Elwell's Malpractice, 267.)

As an illustration of the value of this sort of evidence in detecting crime, and also to show some of the difficulties to be encountered by the medical expert, I subjoin the following history of the celebrated Parkman case:

Dr. Webster, the alleged murderer, had a residence in a Medical College in Boston. He requested Dr. Parkman to call on him at his rooms, on the 23rd of November, 1849, at which time and place they would discuss and settle a financial matter that existed between them. Dr.

Parkman was seen at about two o'clock to enter the Medical College, after that time he was never again seen alive. The prisoner stated that Dr. Parkman did not keep his appointment nor was he in the college that day. On the next Friday week, in the furnace, adjoining the prisoner's laboratory in the College building, there were found numerous bones mixed with the cinders and slag of the furnace, also blocks of mineral teeth. These blocks of teeth with the jaw, it seems, had been so placed in the furnace that the cold draft of air passing into the furnace, had prevented them from being as completely destroyed as were the other portions of the body. A quantity of gold which had been melted, was also found. In a vault there were found other bones, and in a tea chest there was found the entire trunk of a human body and other bones. These parts, when arranged in their proper positions, made a body of the size and apparent age of the missing man; besides, it presented the peculiarities belonging to Dr. Parkman. It being in a medical college it is likely that these parts would have been, in some parts, in duplicate, but such was not the case. However, with all this there would have been room to doubt, had it not been for the artificial teeth.

Here came in the expert evidence. Several dentists gave testimony to the teeth being those of Dr. Parkman. A mould had been made of the doctor's jaw, and this had been preserved. Its shape was such that the discovered block of teeth fitted perfectly. On the left side of the thorax a penetrating wound was discovered, and to this the death was attributed.

After a long and careful investigation the prisoner was found guilty. He subsequently made a confession, in which he stated that he first struck Dr. Parkman on the head with a heavy stick and then stabbed him with the knife found in the tea chest with the body.

In case of personal injuries medical evidence of the highest order should be procured. The following case llustrates the importance of the above rule. The case is

sent the editor of the *London Lancet*, by Mr. PERFECT, a surgeon of Hammersmitt.

"It is now thirty years ago, that accidentally passing through Packhouse, Turnham Green, my attention was attracted to a mob of persons of the lowest order assembled around the door of that inn, who were very loud in their execrations against a certain person who was suspected of having murdered his brother; in corroboration of which I was told that his bones were found near the premises where he formerly resided, upon view of which a jury was then sitting, after an adjournment from the day preceding. I found that two surgeons had been subpœnaed to inspect the remains, and I had no doubt but that every information as to their character had been obtained; curiosity alone, therefore, induced me to make way into the room, where I found that the coroner, and I believe, a *double jury*, were sitting for the second day, and were engaged in an investigation which tended to show that a farmer and market gardener at Suttoncourt Farm had, a few years before, a brother living with him, who was engaged on the farm, but whose conduct was dissolute and irregular to a degree that often provoked the anger of his elder brother, and sometimes begat strife and violence between them; that the temper of the elder brother was as little under control as the conduct of the younger, and, in fine, that they lived very uncomfortably together.

"One winter night, when the ground was covered with snow, the younger brother absconded from the house (for they both lived together), by letting himself down from his chamber window; and when he was missed the ensuing morning, his footsteps were clearly tracked in the snow to a considerable distance, nor were there any other footsteps *but his own*. Time passed on, and after a lapse of some few years no tidings were heard of his retreat, nor perhaps have there ever been since. Some alterations in the grounds surrounding the house having been undertaken by a subsequent tenant, (for the elder brother had then left the farm), a skeleton was dug up, and the cir-

cumstances appeared so conclusive that one brother had murdered the other, that the popular clamor was raised to the utmost, and a jury impanneled to investigate the case.

"After listening attentively to these details, I ventured to request of the coroner to be allowed to examine the bones, which I found were contained in a hamper basket at the further end of the room, and I felt much flattered by his immediate compliance, for he desired the parish beadle, who was in attendance, to place them upon the table; and having himself disposed them in their natural order, I found that they represented a person of short stature, and from the obliteration of the sutures of the skull, and the worn down state of the teeth, must have belonged to an aged person. But what was my surprise when I reconstructed the bones of the skeleton, and found the lower bones of the trunk to be those of a female. I immediately communicated the fact to the jury, and requested that the two medical men who had before given their opinions might be sent for, one of whom attended, and without a moment's hesitation corroborated my report.

"I need not add that the proceedings were instantly at an end, and an innocent man received the *amende honorable*, in the shape of an apology, from all present, in which the coroner heartily joined. It has since been proved, beyond all doubt, that the spot where the bones were found was formerly the site of a large gravel pit, in which hordes of gypsies not only assembled, but occasionally buried their dead, and perhaps more skeletons are yet to be found in that vicinity."

It will not be in courts of justice alone that the medical man will be called upon to solve questions his peculiar studies alone enable him to do. These questions, the proper solution of which, if it do not advance him in the estimation of the community in which he lives, will at least prevent censure from being inflicted upon an honorable profession. A case in point is the following,

which, as it illustrates the general feeling of anxiety that existed for several weeks after the disastrous Chicago fire of 1871, I will here give.

As soon as it was known to what gigantic proportions the fire had extended, the Rev. Mr. ——, hastened to Chicago to look after some friends then residing in the city. With some difficulty the site of his friends' residence was found. All that remained were the crumbling walls of the basement, partly beneath and partly above the level of the street. Amid the *debris* of brick and mortar were the springs of a bed, a sword and scabbard, and some charred and broken bones. These being together, what more natural thought than that they were the remains of — perhaps his friend or friends. The fragments were carefully collected and brought to the interior of the State. The then medical attendant of the gentleman was called and his attention directed to the basket of remains, with a request to determine what bones they were. Approaching with due reverence, for he supposed, himself, they were human, he set himself to the task. There were nothing *but* fragments ; however, he succeeded in arranging enough of them to give him something of an anatomical resemblance to the tuberosity of the ischium with its ramus, and the ramus of the pubes, but not those of a human being. His report was immediately given that the bones were probably the pelvic bones of some domestic animal. But how had they got there ? The reports then current concerning the frantic actions of animals in the streets during the fire, warranted the assumption that while the building was burning, some animal had rushed in at an open door or window and had there perished. Comparing the reconstructed fragments with the pelvic bones of a cow satisfied the Reverend gentleman that if his friends had perished he had failed to find their remains. The gentlemen were forced to accept the situation and await the developments of time. A letter containing an account of the discovery of the bones, and the fears they had

awakened, was directed to such point as the family would be likely to have gone had they been spared. By return post a reply was received from the friend in question. It read: "*Dear Sir:* Myself and family are safe. The bones you speak of are probably the remains of a very fine pair of *antlers*, that I left in my library."

EXAMINATION OF EXPERTS.

Much of the ill-report into which expert evidence has fallen depends upon, first, the false method of selecting expert witnesses, and second, upon the manner in which such witnesses are examined by counsel. This is often of a character not calculated to confer much respect upon the legal profession. This arises from two principal causes; first, counsel are too apt to suppose that the witnesses selected by the opposite party, are selected purposely, to render a false opinion in the case; and, secondly, they engage in the examination of such witnesses, without any knowledge of medical terms, whereby they might construct an intelligent inquiry. To this may be added, the witness is frequently called upon, without any opportunity for preparation, to answer questions which require thought for their proper solution. Time for this is not given. It is true he has his remedy in replying "I do not know." Physicians have no court of ultimate appeal; if they had, much of the censure so lavishly spent upon them, now, would be deserved. Then, too, if counsel would give as earnest thought to the development of truth, as they do to the gaining of their cases, the cause of justice would be more substantially subserved. "The best evidence the case will admit," is quite differently construed by lawyers and physicians, and for this, the mode of selecting *experts* is largely responsible.

In respect to the clashing of opinions among medical witnesses, gentlemen of the law are the last persons who should make uncharitable remarks, as the citations

herein made abundantly show. That they give miserable testimony, in a miserable way, a recent ecclesiastical trial gives decided evidence. It should ever be kept in mind that opinions, formed from facts in evidence, are apt to be antagonistic. While the expert should be able to determine between the apparent and the real, his difficulties should not be enhanced by the unfair and ungenerous manner in which counsel frequently propound their questions. In fulfilling the functions of justice, courts should exert their power to compel counsel to put their questions clearly.

Opportunity is offered counsel to put his questions ambiguously, by requiring experts to answer upon hypothetical cases, or as to certain designated facts existing in the case, "supposing them to be true." Now the expert may not have been present when these facts were testified to, and if he was he would not be permitted to found his opinion upon them, for whether they be true or not, is for the jury to decide, and not the witness.

We find in practice so many points of dissimilarity in the same disease, modified, as each case is, by age, sex, temperament, concurring disease, social position of the patient, that there will necessarily arise, in the testimony of medical experts, seeming inconsistencies and contradictions that have no reality in fact. Under such circumstances the position and credibility of the witness stands in no enviable light.

Where a witness testifies to a fact which is wholly or partially the result of reason exercised upon particular circumstances, it is obvious that the reasons of the witness for drawing that conclusion are of the most essential importance for the purpose of substantiating that his conclusions are correct ones. These reasons the witness should be permitted to give.

The expert, finding his testimony called in question, may wish to fortify it by quotations from standard medical authorities. Whether he should be permitted

to do this, authorities differ. In *Collier* v. *Simpson*, 5 Carr. & Payne, 73, TINDAL, J., said: "I think I cannot receive medical books." It was further held, that although professional books or books on science are not admissible, witnesses might be asked the grounds of their judgment and opinion, which might in some degree be founded on those books as a part of their general knowledge.

ABBOTT, J., also, in *Rex* v. *Donellan*, objected to medical books in evidence: he said, "We cannot take the fact from any publication; we cannot take the fact as related by strangers."

"It appears to us that no witness can follow this advice without compromising the right and dignity of his profession, as well as the force of his evidence; for it would not be difficult to show that medical evidence altogether is little else than a reference to authority * * *. Is an oath more binding than the solemn act of sincerity between the author and the world by the very act of publication?" (Edinburg Med. and Surg. Journal, vol. 19, pp. 480, 610.)

In *State* v. *Rogers*, medical books were admitted, but in a subsequent case the same court refused to admit them. (Elwell's Malpractice, 331.) It was held, in the case of *Bowman* v. *Wood*, 1 Iowa, 441, that, as "medical witnesses were permitted to refer to and quote authors, there was no reason why they might not be permitted to read the views of distinguished authors. The opinion of an author as contained in his works is better evidence than the mere statement of those opinions by a witness, who testifies as to his recollection of these from former reading." So also in *Stoudenmeier* v. *Williamson*, 29 Ala., medical works, admitted or proved to be standard with the profession, are held admissible as evidence, with proper explanation of technicalities or phrases not generally understood.

The expert should not complain when the privilege of

fortifying his testimony is denied him, as it is a rule applicable to lawyers as well.

SPENCER, C. J., says of law books, that they "may be sometimes read to inform the mind of the court, but never as evidence."

"The medical witness, therefore, has no just grounds of complaint, because his books are not received in evidence. The court honors his individual opinion as of higher value than that of an outside author. The court presumes, that from reading these authors, close thought and actual observation and experience; the witness under oath, subject to a cross-examination, will more certainly enlighten the case than if it depends upon the published opinions of authors, who, perhaps, had a favorite theory to support or an old prejudice to influence them, on a question or subject constantly advancing. Then the author himself may have changed his opinions since the book was written." (Elwell's Malpractice, 335.)

The expert is to give an opinion founded upon the general principles of his science. It is right that his experience, his ability and his own sense of right should receive due acknowledgment at the hands of the court. But on the other hand all these circumstances are subject to great abuse. *Experience* and *gray hairs* are often appealed to; especially does the public adduce these as evidence of great ability. Of the two the gray hairs are often of the most value. In respect to experience, a writer has said, "I believe that no small portion of that odious discrepancy which has prevailed among medical witnesses, whereby the lustre of medicine itself has been tarnished, is chargeable to the prevalent affectation of being men of *experience* rather than men of *learning*."

It is usually such men whom we hear decrying medical authorities. It was in rebuking such a one, that the Hon. Chief Justice DALLAS said, "I will not sit here and hear science reviled by ignorant tongues."

The medical witness may be asked if such and such authorities are good. To this general question, his ac-

quaintance with medical writers should be such that he could give a general answer, but if he is asked if he agrees with such and such authority in matter of opinion, he should be quite certain what those opinions are before answering.

Bearing in mind that he is not to give an opinion as to the merits of the case, he is to answer all questions, that are permitted by the Judge, whether by counsel or jury, clearly and briefly, and if this is not sufficient to cover the entire truth, he is to add that which will.

Difficulties often arise between counsel and expert from the use of common words and terms which have a technical force. For instance, a phrase in very common use among physicians when speaking about what should be done in a given case, is, the "indications" are so and so. So also any symptom or occurrence, in the course of a disease, which serves to direct to a suitable course of treatment, is said to be "indications" for such treatment. Now this is a strictly medical use of the word, and is correct, yet counsel would generally object to it, and would ask what you meant by it, and when you replied that the symptoms, conjoined with your knowledge of the principles of medicine, directed to a proper treatment, counsel would be quite likely to curtly reply, "why don't you say so then." A recent writer in the American Law Review, in reviewing the Wharton trial, objects to the adjective "*fulminant*" in connection with cerebro-spinal meningitis, characterizing it as an "alarming adjective." For lawyers to do this is a "*tort*," for which an "*action*" ought to "*lie*."

The use of terms of various significations according to the import most naturally given them by the two professions, "necessarily creates ambiguity, a condition usually aimed at by the counsel, whose effort frequently is to make the worst appear the better reason." (Ordronaux.)

In the use of medical terms lawyers are quite as apt to commit a solecism, as physicians are in the use of legal

terms. Thus the reviewer in the Wharton trial speaks of "*urinic*" poison, when he intended *uræmic;* so also counsel have asked concerning "*dysuria*" in the fæces. Dr. Taylor remarks: "A judicious witness will avoid anything like a triumph over his examiner under such circumstances, and simply put him right."

If lawyers would seek the advice of an intelligent physician, before sending their briefs and abstracts to the printer, many of these mistakes would not appear in print.

"The expert," Dr. Percival remarks, "should use his best endeavors, that his mind be clear, and collected, unawed by fear and uninfluenced by favor or enmity.

"Manifestations of warmth and zeal beyond that which the occasion calls for, over-forwardness in testifying that which will benefit the party, and an ill-concealed reluctance in declaring that which tends to his prejudice, flippancy and levity of manner, coldness and apathy in describing injuries which would naturally excite a contrary feeling, indications of subtlety, artifice and cunning, are with a multitude of other tests for estimating the true character of a witness and the value of his testimony." (Starkie.)

Physicians when acting as experts should avoid, as far as possible, the use of Greek and Latin words, making use of these only when the vernacular does not express it as well. So, too, they should avoid the use of words from modern foreign languages, and words of a strictly technical meaning, so far as they can consistent with clearness. However, in cases where doubt might arise, in the use of the vernacular, the foreign word is to be retained, with proper explanation. The expert is to aim at a happy medium in this respect, making his testimony, either oral or written, comprehensible to the common mind, by explanation as the case may require. "Be the plainest man in the world," said Sir William Blizzard, "in a court of justice; never harbor a thought that if you do not appear positive you must appear little and

mean ever after; many old practitioners have erred in this respect. Give your evidence in as concise, plain and yet clear a manner as possible; be intelligent, candid, open, and just, never aiming at appearing unnecessarily scientific; state all the sources by which you have gained your information. If you can, make your evidence a self-evident truth; thus, though the court may at the time have too good or too mean an opinion of your judgment, yet they must deem you an honest man. Never be dogmatic, or set yourself up for judge and jury; take no side whatever; be impartial, and you will be honest. In courts of judicature, you will frequently hear the counselors complain when a surgeon gives his opinion with any the least kind of doubt, that he does not speak clearly; but if he is loud and positive, if he is technical and dogmatic, then he is allowed to be clear and right. I am sorry to have it to observe that this is too frequently the case." (Beck's Med. Jurisp., vol. 2, 12th ed., p. 959.)

The expert is to remember that when he talks of "excited sensibility," "reflex action," "endemic disease," etc., both judge and jury are in the dark, these being terms with which both are entirely unfamiliar. It will reflect no credit, either, for the expert to speak of "the *nerves* being *relaxed*," the term being more applicable to the muscular than to the nervous system. He is to give his testimony as briefly and as much to the point as possible. He should give his evidence in such a manner as will convey the impression that he believes it himself. If there should be any doubt, it should be made known during the "direct examination." If he permits himself to become a partizan for either plaintiff or defendant he will most certainly receive a severe rebuke from the judge or from the counsel of one or the other party.

This impartiality is most difficult to exercise by a witness who has been in professional attendance on either of the parties, and who has been discharged by such party, because he did not look unfavorably enough upon the case to suit the intentions of the patient who pur-

posed bringing a suit for damages. Such cases frequently occur in connection with injuries received in quarrels.

"Parties who desire a medical examination for legal purposes, in this country, usually hunt up the doctor or demand that he visit them at the appointed time. In either case, when there is a desire to deceive the physician, there is a crutch, without which the patient cannot walk. Or if he comes to the physician's office he brings his wife with him because he is so weak, also pills and other medicines he has been taking. Did we come suddenly upon such a person, we would find him at some gainful employment or enjoying some pleasure." (Caspar, vol. 4, p. 81.)

It is usually in charitable practice that cases arise where it is claimed there is incapacity to make a living. These cases are surrounded with extreme difficulty. On the one hand, it is evidently the physician's duty to guard the interest of the community that employs him; at the same time, there are undoubtedly cases of serious illness, which it is impossible for a physical examination to reveal. When the applicant is an able bodied person and has become an object of public care through his own dissipation, it would only be just to assume that he is a malingerer and treat him accordingly.

The medical practitioner is frequently applied to by parties seeking to evade public work such as road labor. Certificates of this character, it is unnecessary to say, should be free from technicalities so far as possible, compatible with fullness and completeness. It should contain complete *date* of its execution, place *where* examination is made, clear statement of the facts upon which the physician's professional opinion is based,—and he should take care that this basis is carefully made out,—a statement of the reasons why such certificate is required, the object for which it is to be employed, the statement of the patient or his relations as to his condition, and the personal observation of the physician as to the actual morbid phenomena observed.

It might be advisable to refuse all certificates except under requisition from ruling Boards, and never to give one on the request of the party concerned or his relatives. The advantage of this method is, that when the medical examiner waits for an official requisition, he has the power to see the patient when he least expects such a visit, and should the certificate be adverse to the applicant, much unpleasantness will be avoided. The examiner should under no circumstances grant a certificate *instanter* at the request of the applicant.

Farther, here, as in cases before the court, the expert should form his opinions from his own observation, and not from that of his colleagues acting at the same time as experts. Another rule is, that the strictest courtesy is to be observed towards other experts associated in the case. "Respect yourself, and the public will also." It is the duty of the expert to pay great deference to the judge; as for opposing counsel, their self-imposed importance may be safely ignored. Their object ever is to have the witness testify in their favor, and they will use every means to accomplish this. "If, however, the dictation of the judge is such that it is antagonistic to the latest and most approved theories upon the case, the expert should respectfully so state it." Thus where a judge, altogether gratuitously, said to the medical witness, who was testifying to the value of the *docimasia pulmonum* ("Hydrostatic test, a method of proof to which the lungs of a new-born child are subjected, for the purpose of detecting whether it has or has not respired after birth; in other words, whether it was born alive or dead." Dunglison's Med. Dict.), "You do not appear old enough to have seen the late Dr. Wm. Hunter, but you must know that he was one of the most eminent physicians of England, and that he has stated that no dependence whatever is to be placed on this test." The expert replied, "I am aware that was his opinion, but I entertain a different one, and I believe mine is now the received

theory among medical men." (Dr. Gilman, in Beck, p. 959, vol. 2.)

The courts are extremely jealous whenever a medical witness assumes any of the functions of the Bench, yet how frequently do judges arrogate to themselves, as just shown, the functions of the "expert." Especially will this be noticed in connection with cases of insanity.

Doubts occasionally arise, in cases of alleged murder, whether the death has been occasioned by the wound or by the unskillful and improper treatment of the wound. In the *Stokes* case it was proven that "the bullet, on entering the abdominal cavity, caused the *first* perforation of the peritoneum; then passing through the omentum, causing four more perforations of the peritoneum; thence through two knuckles (convolutions) of the ileum, four more perforations of the peritoneum and four of the small intestines; thence through the mesentery, two more peritoneal perforations; thence through the sigmoid flexure of the colon—whether it was the ascending or descending portion, I know not—with two more perforations of the peritoneum, a final perforation of the latter on its pelvic reflection over the psoas magnus muscle. There were, therefore, four (4) holes or perforations of the small intestines, two (2) of the large, and fourteen (14) perforations or distinct wounds of the peritoneum. The missile then passed below the muscular fascicule of the psoas magnus, and following the course of that muscle over the arch of the pubes, without causing any injury whatever to the innominata or haunch-bone, lodged near the trochantea minor of the femur or thigh bone." (Peugnet, Gunshot Wounds of the Abdomen.) And yet it was thought that the medical treatment of Fisk had a great deal to do with his death, simply because it could not be proven that no man who had ever recovered from a gunshot wound of the abdomen did not receive as many wounds of the intestines and peritoneum as he did. To prevent certain dangers, that were certain to arise in a penetrating wound of the abdomen, Fisk's surgeons gave

him an opiate, as doubtless those who now call in question the treatment would have done, but Fisk died *post hoc, ergo propter hoc.*

This was one case in which, I believe, the medical witnesses were not called upon to deliver learned dissertations upon "wounds," it being admitted by the defense that Fisk had really received these.

In respect to definitions, medical witnesses had better not attempt them, without they give them in the words of the *statutes.* Especially this should be the case with such words as "insanity," "wounds," "poisons," "deadly," etc. The following definitions of a wound, under ordinary circumstances, would be considered *good* definitions: "A recent solution of continuity in the soft parts, suddenly occasioned by external causes." "A solution of continuity from violence of any naturally continuous parts." "An external breach of continuity directly occasioned by violence." "An injury to an organic texture by mechanical or other violence." (Taylor's Princip. and Pract. Med. Jurisp.) Dr. Guy accepts the element "*solution of continuity,*" and then divides wounds into two classes: first, such as are *without solution of continuity*, and second, such as are *with a solution of continuity.* To the first class he relegates *contusions*, *concussions*, *simple fractures*, *dislocations*, and *sprains.* To the second he consigns *incisions*, *punctures* and *lacerations*, *compound fractures*, and *gun-shot wounds.*" (Forensic Med.) "In Legal-Medicine, the term *wound* comprehends all lesions of the body." (Beck Med. Jurisp., vol. 2, art. "Wounds.")

"Where a prisoner had bit off the end of a finger, it was held, on a case reserved, that it was no wounding. So, when the nose has been bitten off, it has been held no wounding. Any kind of instrument is sufficient, but there must be some instrument used, to make it a legal wounding. A stone bottle, a hedge-stake, a gun, and even a shoe, if off or on the foot. A kick from a *bare* foot would not be a wounding. It has not been settled

whether the teeth of a dog, which had been set to bite a person, can be considered as instruments within these statutes." (Elwell's Malpract. and Med. Evidence, 315.) "A solution of continuity in the soft parts, produced by some mechanical agent." (Dunglison's Med. Dict., Philadelphia, 1866.) "To constitute a wound, the external surface of the body must be divided." (Am. Jurist, vol. 18.) "In France the legal and medical definitions accord. By a wound, is understood every local effect on the body produced by acts of violence, or by the application of any caustic or corrosive agent." (Beck, vol. 2, 279, 280.)

These numerous citations are made to show what difficulties medical witnesses will have to meet, and, knowing them, may to some extent be prepared to meet them. If the witness could not give a definition of a wound in the words of the statutes, he should incline to that adopted in France, then qualify it by "slight," "severe," "dangerous," etc., the meaning of which would be left to the professional knowledge of the witness. It would not be sufficient for him to make a naked declaration, that the wound was "dangerous." "He must, if called upon, state to the court satisfactory reasons for his opinion." In legal acceptation, those wounds in which the danger is not *imminent*, would not be dangerous. Wounds of the thoracic or abdominal organs, of the large blood-vessels, or a compound fracture of the head, with depression of the fragments of the skull, could well be considered dangerous, because life would be in imminent peril. Wounds that are only liable to be dangerous, remotely or only in certain cases, would not be considered dangerous. Such wounds might be considered "serious." Other wounds might be considered as "slight," or "very slight," etc. Very correct opinions may be formed from a large reading of "good surgical authorities in relation to injuries of different parts of the body."

CONFESSIONS.

Confessions of guilt may be sometimes made to a medical attendant. These must be free and voluntary on the part of the person making the confession. Under no circumstances is this to be obtained by threat, promise or inducement. The physician's duty is to make no comments, but reduce the person's words to writing, as soon as convenient or possible, read it to the person and obtain his signature, countersign it himself, and if possible have it attested by other witnesses.

It should be borne in mind that persons under the influence of disease have made voluntary confessions of guilt, which, when health has been restored, they make haste to deny. The mental condition, therefore, of persons making such confessions should be carefully ascertained.

DYING DECLARATIONS.

"Death-bed declarations also are receivable in evidence, when made after all hope of recovery has been given up. It is presumed that such persons are induced to speak the truth, by as powerful a consideration as an oath. It is not necessary that he should *express* his convictions. It may be inferred from the nature of the injury, or from other circumstances of the case." (Guy's Forensic Med.)

Persons arraigned by such declarations may vindicate themselves in the same manner as they might if the statements were made under oath.

The medical practitioner's duty in the case is to reduce the statements to writing, put no leading questions, nor any questions, except such as are calculated to explain ambiguous statements, read it to the dying person, and if possible obtain his signature. If there be no time for this, the physician is to make memoranda of the statements, in the *identical* words of the person, immediately. These notes he is permitted to use in court to refresh his memory, when he comes to testify. He cannot use a

copy of such notes. The physician must also satisfy himself as to the mental condition of such person, noticing particularly whether he be "calm and collected or otherwise, and whether he is under the influence of any strong bias or undue feeling of resentment."

The medical man is to note any signs the dying person may make, for these, if intelligible, are also received in evidence. (Elwell, 318.)

If time permits, the physician may relieve himself of much of this responsibility, by sending for a magistrate to take the dying person's deposition. This course should always be adopted when feasible.

Medical men should discourage the bringing of suspected persons before one who is dying, in order that he may be identified. Surgeons of considerable experience are aware that in persons dying from hemorrhage, or from wounds implicating the brain, delirium is quite apt to occur, and that this delirium is not easily recognized by non-professional witnesses. The ability to prove an *alibi* has upon more than one occasion saved the reputation and lives of persons wrongfully accused.

The duty of a medical witness, when called to view a dead body, will be considered when we take up the subject of Inquests.

(To be continued.)

ARTICLE II.

ETHER VERSUS CHLOROFORM.

A PAPER READ BEFORE THE COOK COUNTY MEDICAL SOCIETY,

BY E. W. LEE, M.D., (DUBLIN), CHICAGO.

I purpose this evening to draw your attention to the relative merits of Chloroform and Ether as anæsthetics. Of course my personal experience of the subject must be limited, but I have endeavored to collect such information as I thought would be interesting to the Society, which has been done in a rather hasty manner.

I suppose it will appear almost superfluous for me to say that this country is the birth-place of anæsthesia in surgery—ether having been discovered to have the power of destroying pain, by the late Dr. W. G. T. Morton, a dentist, of Boston, Mass., in 1846. Chloroform followed shortly after, Great Britain being the seat of the discovery, and to the late Sir James Young Simpson belongs the honor of having introduced it for a like purpose. These discoveries may be regarded as the greatest boon that has been conferred on suffering humanity. Although British writers on the subject give us credit for using ether comparatively largely in this country as an anæsthetic, I think the real facts would fail to sustain the assumption, chloroform being more generally employed, as it is considered more agreeable to the taste, more rapid in its action, and takes a smaller quantity to produce the desired effect. The main question to be considered this evening is the comparative safety of the agents. In order to arrive at a correct conclusion, it will be desirable to note the effect of each on circulation and respiration.

Owing to the frequent deaths occurring from the use of chloroform, a committee was appointed by the Royal Medical and Chirurgical Society of London, in 1864, to inquire into its uses, and physiological, therapeutical and toxical effects. This committee, while investigating the subject of chloroform, indirectly considered the use of ether. In their report we find as follows:

EFFECT OF ETHER INHALATION.

The Heart.—The muscular movement is but little influenced; the first, or stimulating effect, is less sudden and more sustained; even after insensibility is procured its action is more vigorous. Ether may be considered as a stimulant, in a certain degree, to the heart's action. The mercury of the hæmadynamometer at first is absolutely raised, never falling until the respirations cease.

EFFECT OF CHLOROFORM INHALATION.

The Heart—Is first stimulated, and its contractile force augmented, but after this its action is depressed, and although the respirations go on properly, its action, as shown by the mercury of the hæmadynamometer when connected with the circulation of the animal, fails, and the mercury falls.

Respiration.—In ether, with strong inhalation, there is a temporary arrest of respiration, but it is less marked than with chloroform. With small quantities there is no arrest of the breathing, although the number and depth of the respiratory efforts are diminished; after a short time the respirations become slow and full, and next, while their frequency rises, the range of their movements is reduced.

In chloroform, with strong inhalation, there is a temporary arrest of respiration, dependent on spasm. This arrest, after a few seconds, ceases, and inhalation can again take place. With smaller quantities the inspirations become gradually shallower, and for a time retain their natural order, but become less frequent, and after perfect insensibility is produced, the amount of air entering the chest is extremely small.

How Ether Causes Death.—The effects produced in a strong quantity equaled those of chloroform in a small, but with an important contrast, that it exerted but a very slight depressing influence on the heart. Death occurred by the failure of the respiratory movements, the heart's pulsations continuing generally for some time after the respiration had ceased.

With chloroform, strong inhalation caused the pulse and respiration to cease nearly simultaneously. In the majority of cases the pulse stopped before the respiration, and the heart's action could be distinguished for some time after the pulse had ceased.

The conclusion formed by the committee was that it is desirable to obtain an agent which shall produce the required insensibility, and yet be not so dangerous in its

operation as chloroform. Ether, to a certain extent, fulfils these conditions. It is less dangerous than chloroform, but its odor is disagreeable; it is slow in operation, and it gives rise to greater excitement than chloroform.

Other experiments have been made, showing that an atmosphere charged with more than a certain percentage of the vapor of chloroform, stops the heart before breathing ceases. The chloroform committee reported that the sequence of the phenomena during the experiments on animals is similar to that observed in man; and if the same percentage of the agent be administered, the results induced are nearly uniform. By combining the statistics collected by Dr. Andrews, of this city, and Dr. Richardson, of London, we find that in 92,815 ether inhalations, there were 4 deaths, or 1 to 23,204; in chloroform, 53 deaths to 152,260, or 1 to 2,873; a mixture of chloroform and ether, 2 deaths to 11,176, or 1 to 5,588.

In the report of the committee, June, 1864, a table of 123 deaths, occurring during or immediately after the administration of chloroform, is recorded, 109 deaths being thus given: Under 5 years, none; from 5 to 10 years, 9; from 15 to 30 years, 30; from 30 to 45 years, 32; from 45 to 60 years, 12; over 60 years, 2; 72 were males, 32 females.

The statistical tables of Drs. Andrews and Richardson demonstrate pretty clearly the relative safety of the agents. They show chloroform to be about eight times as dangerous as ether, and about twice as dangerous as chloroform and ether.

Many surgeons have abandoned the use of chloroform altogether as an anæsthetic. Prof. Gunn, of Rush Medical College, and Prof. Andrews, of Chicago Medical College, have, I believe, used ether exclusively for years, without accident, if I am correctly informed.

It has been proved that ether is superior to chloroform in sustaining the heart's action; therefore it has the less power for evil in case of careless or unskillful administration. The various stages of its operation are so

distinctly marked that if the most ordinary care be used in its employment, it is next to an impossibility for fatal results to ensue.

According to Dr. Ashurst and Dr. Morgan, in administering ether you can exclude air with perfect safety; with chloroform the most extreme care must be used to admit air. Dr. Morgan, of Dublin, a surgeon and teacher of many years' experience, has devoted considerable attention to this subject. He has devised an ether inhaler which appears to answer the purpose so well as to effectually dispose of the objections attending ether as an anæsthetic agent. He has written a pamphlet containing much valuable information, and from it I have obtained much of the matter which I am able to lay before you this evening. Dr. M. says, regarding the admission or non-admission of air in employing ether, there has been much diversity of opinion, and some of the objections which have been urged against its use, of causing delay, sickness of stomach, headache or spasm, are dependent on this very diversity of application, as it is found by those surgeons who exclude air, that the results are satisfactory in the extreme. We have here the key of the question: ether vapor being considerably heavier than air, when applied by the sponge would flow away unseen from the mouth and nose, and much of it thus escape inhalation, while from being concentrated and more efficiently applied by the other mode (exclusion of air) it would act more satisfactorily, and produce anæsthesia.

I had a case the other day which tested this very point severely. A stout healthy man came into my office; the last joint of one of the index fingers had been crushed whilst coupling cars; on examination, I found it would be necessary to amputate above the seat of injury; he had just eaten a hearty dinner; he would not submit to the operation without an anæsthetic, so I put him under the influence of ether, fully expecting that in doing so he would deposit his dinner, if not my fee, before leaving.

Carefully excluding air, using this inhaler, he was insensible in three and one-half minutes. The operation was performed, when he quickly recovered consciousness; there was no sickness of stomach whatever. Dr. Morgan asserts that ether when applied in this manner produces insensibility as quickly as chloroform, and from what experience I have had with it I certainly agree with him. He considers it established, that while chloroform exerts a depressing influence on the heart, ether exerts a stimulating one; that chloroform is the most dangerous, while ether is the safest of all anæsthetics; that the only argument in favor of chloroform as contrasted with ether is, its convenience. Mr. Erichsen says in his work, "the fatal consequences which have attended the use of chloroform have caused American surgeons to almost entirely trust to ether in preference. Ether is certainly the safer agent." He also says, the only argument in favor of chloroform, is its convenience.

A French surgeon, Mons. Diday, of Lyons, has gone so far as to say, that any surgeon using chloroform instead of ether as an anæsthetic, would be culpable. A commission of inquiry formed by the Medical Society of that city, pronounced in favor of etherization, admitting that the comparative study of the two anæsthetics was far from being complete.

Notwithstanding the results of experiments and experience, many of the most eminent surgeons record their preference for chloroform as an anæsthetic agent. Mr. Lister, in a very able article in the last edition of Holmes' Surgery, takes strong ground in that direction, contending that the only cases where death results, unavoidably, from the use of chloroform is, when an idiosyncracy exists antagonistic to its use, and that so seldom happens that it is not worthy of consideration at all. He states, in fact, that death only occurs from careless or unskillful administration, and he ruthlessly upsets many of our time-honored rules for conducting its use. Our preliminary examination of the heart, for instance, might better be

dispensed with altogether, for according to him, a patient with a diseased heart in the event of having to undergo an operation needs the chloroform more than if such a condition did not exist, the risk of the shock of the operation on the feeble heart being greater than that of the anæsthetic ; better let the pulse alone and let the administrator concentrate his entire attention on observing the respiration, as that is the first to go wrong, the pulse failing secondarily—the heaving of the chest goes on when actually no air is entering. This would appear to coincide with results observed by the chloroform committee. He lays great stress on the beneficial effect of drawing out the tongue forcibly in case of accident, contending that in many cases it fails from not being properly done. Notwithstanding his able arguments in favor of chloroform, a careful perusal of his article and the cases which he cites, where death was imminent but for prompt and decided action, makes one more distrustful of its safety. Mr. Syme, he says, used chloroform in many thousand cases, also the late Sir J. Y. Simpson, without any unpleasant consequences. Simpson lost one case, near the end of his career.

Mr. Lister disposes of ether in a very summary manner, but he is obliged to admit nearly all the points claimed for it. While I do not agree with his conclusions, for argument's sake, admitting that they are correct, the very elaborate directions he finds it necessary to give for its administration, and the narrow escapes he has witnessed, must be regarded as a strong argument in favor of some agent possessing less dangerous qualities. I cannot refrain from relating a case bearing strongly on this point. Some ten years since, a young friend of mine was desirous of having an operation performed for strabismus, which was of an aggravated character, causing him much annoyance and discomfort. One of the first oculists of the day was engaged to operate, and he brought along an able assistant to take charge of the anæsthetic. Chloroform was chosen, but on attempting to

administer it, the heart's action became so tumultuous that after repeated efforts to get him under its influence they were obliged to desist, and the operation was indefinitely postponed. During the past summer I saw him for the first time since; he was then suffering from double strabismus, the other eye having become affected, but not in so marked a degree. I urged him to try once more, and that ether should be employed instead of chloroform; after some persuasion he yielded, but insisted that he could not be anæsthetized. Yet, notwithstanding these unfavorable circumstances he sank into insensibility in about four minutes, and the operation was successfully performed, resulting in perfect correction of the deformity. Here was a case in which there certainly existed an idiosyncrasy antagonistic to chloroform yet yielding readily to ether.

To the general practitioner this subject must be full of interest: he is depending in many instances on his local reputation for his success. The operating surgeon, having a firm standing in the estimation of the public, can stand a fatal case or two with far less injury to his reputation than his less prominent brother, therefore ought he not to select with great care the safest agent, not only for the sake of those whom he is called on to aid (which, of course, should be the first consideration,) but also for his own?

It may not be out of place here to make some remarks concerning the use of anæsthetics in cases of severe shock. Either of the agents in question has the power of stimulating the circulation when properly used, and is relied on as a most potent aid in procuring that result. So the surgeon does not now wait, as of old, for reaction, but proceeds to use the anæsthetic, some contending that we cannot use it too soon. This I cannot agree with, as nature, in most cases, makes some effort at reaction, and when she does, is the proper time to employ it. You certainly run a risk of annihilating the action of the already feeble heart by too early administration, and the fact of its having been used under such circumstances with

impunity should not be considered any justification of the practice. There is hardly a practitioner who has had occasion to use chloroform frequently, that cannot call to mind some very narrow escapes. As has been shown, the space between complete insensibility from chloroform, and death, is short indeed. Sometimes we are called on under circumstances where we are obliged not only to operate, but look after the anæsthetic as well, skilled help not being available, so that the responsibility is double. I think few will deny that, under such circumstances ether is immeasurably the safer agent.

I am, as I said in the beginning of this paper, contrasting the relative merits of the two leading anæsthetics. I think that the statistics relative to the ages at which death occurred, to which I have referred, need some attention. They appear to show that the period under five years of age may be regarded as safe for chloroform administration. This may, perhaps, be explained by the fact that fewer subjects are submitted to its influence at that age. I have never heard of any accident attending its use during parturition, there seeming to be a peculiar condition favorable to its action.

If I would not be considered tedious, I should like to relate a case bearing on that point. I attended a healthy young woman in parturition, some years since; the complications arising during the labor, necessitated the use of chloroform at intervals, for about five hours. She bore it remarkably well. I had no professional assistance. That same woman came to my office, some time after, to have a needle extracted, that penetrated in the vicinity of the knee-joint. I had an assistant to administer chloroform to her. She was barely under its influence, when, without any warning, circulation and respiration suddenly ceased, and were with great difficulty again restored.

Considering the absence of any record of deaths during parturition, and under the period of five years of age, chloroform, in these cases, may be considered as

safe as any other anæsthetic; under all other circumstances, ether is superior.

Before closing, I will draw the attention of the Society to the fact that ether is, and has been for a long time, in certain districts in the north of Ireland, used as an intoxicant. Its exhilarating effects are such, Dr. Morgan says, that many have found it a seductive substitute for alcoholic stimulants, even to the extent of producing intoxication. In Ireland, curiously, its virtues, if they may be styled in this way, have been already appreciated, and as that province whose inhabitants are peculiarly accredited with astuteness has been the most noted for its consumption, we may conclude that it presents, despite its supposed disagreeable odor, the recommendation of being good value in producing the desired effects.

A Mr. Draper, in the *Medical Press and Circular*, has lately put the question of ether as an intoxicant in so clear a light, that it has attracted considerable attention. He states: "The floating idea that there are fair consumers of Hoffman's Anodyne and perles d'Ether, for whom ether had never been prescribed, quite prepares one for the discovery that there are, in the northern part of Ireland, a number of people who, forswearing alcohol, supply its place with ether—a race to whom ether is what koumiss is to a Kalmuck, ava to a South Sea Islander, absinthe to a certain class of Frenchmen, or gin and whisky to their more immediate neighbors. That they should take 'nips' of ether morning, noon and night, as they would whisky, and—for anything shown to the contrary—drink good luck or ratify bargains in a glass of ether, was not a thing to look for, and is perhaps without parallel in the history of narcotic stimulants. The facts rest upon the authority of a number of gentlemen in their respective capacities of physicians, clergymen, ether manufacturers and druggists.

The usual quantity of ether taken at one time is from two to four drams, and this dose is repeated twice, thrice, or even four and six times daily. It is taken unmixed

with water; indeed, its very slight solubility in that fluid would make this a useless precaution; but the usual practice is to first take a mouthful of water, then a dose of ether, and again a mouthful of water.

The intoxication produced by ether resembles that of alcohol, but it is much more rapidly produced, and is more evanescent. The ether seems to be eliminated entirely by the lungs, and the breath of the ether drinker always affords ample evidence of his addiction to the habit. I am credibly informed that at the fair of Drapertown, which appears to be the paradise of ether drinkers, the prevalent smell is not, as at country fairs, of pigs, tobacco smoke, or of unwashed human beings, but of ether. I have not been able to learn that, apart from the moral ill effects common to all excitants and intoxicants, the habitual use of ether brings in its train any peculiar evils, and although it would be wrong to draw a conclusion from completely negative evidence, I am disposed to believe that the votaries of ether incur less danger from the habit than ordinary dram drinkers, and there are two good reasons for this belief.

If we assume that there is nothing specificially injurious in the action of ether, it will be readily admitted that, having a definite chemical composition, and not being very liable to adulteration with other fluids, it must be an improvement upon the sophisticated alcoholic potations which, with these people, it has replaced. Again, the affinity of ether for water is so slight that dehydration of the mucous tissue of the alimentary canal and that aseptic condition which so well mark the difference between the effect of ardent spirits and of alcohol in the form of unbrandied wine, cannot be evils attending its use.

The quantity consumed.—Now if we assume the ordinary quantity taken at one time to average three drams, and this quantity to be in effect the equivalent of half a glass of whisky, we arrive at the result that three gallons of ether supply the place of ten gallons of whisky. It

is very difficult to arrive at any accurate idea of the extent to which ether is used in the north of Ireland. Omagh is said to take 250 gallons yearly, and one Dublin manufacturer has sent to Belfast at the rate of 4,000 gallons yearly."

Dr. Lee then exhibited the inhaler, and stated that he had used it in some twenty cases. The shortest time, in adults, for anæsthetization was two and one-half minutes; the longest, eight. In children the time was even shorter. It is so constructed that air can be entirely excluded; about one ounce of ether usually produces complete anæsthesia, and if the operation be prolonged, one-half ounce is poured into the apparatus as required. Squibb's ether was used.

Progress in Medical Sciences.

ARTICLE I.

PROGRESS OF SURGERY.

BY JNO. E. OWENS, M.D.,

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1. A successful case of Traumatic Tetanus, treated by large doses of Calabar Bean. By SYDNEY RINGER, M.D. (*The Practitioner*, London, November, 1874.)

2. Quinine and Suppuration. By DOUGLAS MORTON, A.M., M.D., Louisville Hospital, Ky. (*The Practitioner*, London, Nov. 1874.)

3. Treatment of Intestinal Obstruction. By Dr. LIBUR. (*Revue Med.-Chir.*, Allemand, 1874; *The Practitioner*, London, Nov. 1874.)

4. Paralysis, caused by Pressure of the India-rubber Cord used in the Bloodless Operation. Reported by Dr. BLAUVELT, House Surgeon at Roosevelt Hospital, N. Y. (*The Med. Record*, Nov. 16, 1874.)

5. Tracheotomy with the Red-Hot Iron. (*Gaz. Med. de Paris; Wien Med. Woch.*, 26, 1874; *The Med. Record*, N. Y., Nov. 16, 1874.)

6. Cases from Prof. GUSTAV SIMON'S Clinique at Heidelberg. (Reported for *The Med. Record*, N. Y., Nov. 16, 1874, by NATHAN BOZEMAN.)

1. Dr. O'Leary, Professor of Materia Medica and Therapeutics and of Forensic Medicine at the University of Cork, was attacked with traumatic tetanus, whilst on a visit to London. The case was under the care of Sydney Ringer, M.D., Sir James Paget, and Mr. Gould. When first seen by the former, patient had been ill in bed three days. There was an oval ulcer about two inches long and one and a half broad, the result of a wound received six weeks previously. The ulcer had been irritated a few days before his illness, by putting on riding breeches. During the examination of the leg, several of its muscles became for a few seconds rigidly contracted, and then they relaxed; then in a few seconds the muscles of the opposite thigh became affected, and even the muscles of both legs. Similar attacks occurred every few seconds, affecting sometimes only a few, at other times involving most of the muscles of the legs. The abdominal muscles were much more rarely, and far less severely, affected, and those of the neck occasionally felt stiff. The upper extremities, chest and jaws, were unaffected. The patient protruded his tongue and swallowed readily and without producing tetanic contraction. The spasms were not brought on by external impressions, such as irritating the leg, or by getting out of bed. His pulse was feeble, and beat 120 per minute. His breathing was calm. Thirty grains of chloral, in combination with laudanum, were ordered. The next morning, the fourth day of illness, he was much worse. The spasms, now frequently recurring, involved the arms. The tetanic seizures only remitted, for, on decline of each paroxysm, more or less rigidity still remained. The muscles of the chest and jaw remained unaffected. Extract of physostigma, gr. $\frac{1}{8}$, was now administered every quarter of an hour by the mouth. After five grains had been given, the paroxysms became much less severe, and the attacks intermittent instead of remittent. The expression was much less anxious, the skin moist and slightly perspiring, and the pulse beat 60. During the first twelve hours

(Sept. 13) after having taken 10 grains, the patient was surprisingly better. The medicine had produced slight loss of power, the arms and legs, especially the latter, feeling rather heavy.

Sept. 14. (Second day of treatment.) Last night he took 30 grs. of chloral and 10 drops of laudanum in addition to 1⅛ gr. of ext. calabar bean, every hour, making 20 grains in nineteen hours; patient free from spasms for sixteen hours; no paralysis from the medicine; drug discontinued at 8 P. M.

Sept. 15. At 10 last night paroxysms suddenly returned with terrible severity; calabar bean, ⅛ gr. every quarter of an hour, recommenced; at 10.30 A. M. patient took ⅜ of a grain of extract, which was repeated at 10.40 and at 10.45, after which he took ⅜ gr. every quarter of an hour. The attack continued with great violence, lasting, with slight remissions, from a quarter of an hour to twenty minutes. The patient was in imminent danger of asphyxia. The attacks occurred very frequently, for instance, at 11.00, 11.09, 11.25, 11.45, and 12.25. It being evident that the medicine had not yet produced sufficient effect, at 12.45 P. M. Dr. Ringer ordered every quarter of an hour ℥ss. of a mixture containing ⅛ gr. to ℥i. At 2.45 P. M., symptoms of poisoning becoming manifest, a dose was omitted. Until this time the whole body had been persistently rigid; but now the body is completely relaxed, the jaws being tightly clenched. There is slight general paralysis; he can raise the limbs slowly, but soon they slowly fall again.

At 1 P. M., Sept. 16th, all trismus had disappeared. To this date the seizures had continued with varying frequency and degree, and the dose of the medicine was varied according to its effect, the *object being to keep up just sufficient paralysis to suppress the spasms.*

Sept. 20. The patient was well enough to visit University College Hospital to witness some experiments with the new Brazilian remedy, Jaborandi. He continued to take an occasional dose of his medicine. There is so

much that is interesting and valuable to the surgeon in this case that I would fain have reported it at still greater length. The interest is enhanced, on the one hand, by the fact that it was under the care of a most accomplished therapeutist; and, on the other, by the fact that the treatment was attended with success. The spasms first attacked the lower extremities, and gradually ascended the body. It ran an irregular course until the occurrence of the relapse which followed the discontinuance of the medicine, when all irregularity ceased. The attack yielded with unusual rapidity, for in thirty-nine hours after the relapse every vestige of the disease had disappeared. In spite of careful watching, serious general paralysis set in very suddenly, at one time, and that, too, when the patient was not taking the largest doses. In respect to the dose of the bean, Dr. Ringer remarks, this case is less valuable than it ought to have been, on account of a dispensing error. The first bottle contained 10 grains of the alcoholic extract. The *watery* extract, unfortunately, was subsequently used by mistake. In eighty-six hours Dr. O'Leary took 140 grains of the calabar bean; and of this, 88 grains were taken in thirty-two hours—2¾ grains per hour. For a short time he took 4 grains an hour.

Dr. Eben Walton reports a case in which he gave of the alcoholic extract small doses on the first day, but rapidly increased the quantity, so that in a few days his patient took daily 16 grains, then 48 grains, then 57, and on one day 72 grains, without any serious amount of paralysis.

2. Dr. Morton records a series of experiments which he has made with the view of testing the theory that quinine exerts a peculiar influence over suppuration, in checking the amœboid motion of the white blood corpuscles and constringing the coats of the capillaries. Such uniformly good results, in his hands, have followed the treatment of gonorrhœa, by three or four injections daily of a solution of quinine (2½ grs. to ℥), that he has re-

jected all other modes. As a lotion (6 grs. to ℥), he claims to have gained very satisfactory results in the treatment of empyema; as an ointment, ten grains to the ounce of benzoated oxide of zinc, in ulcer of the leg; as a lotion, ten grains to the ounce, injected daily, in mammary abscess.

3. Dr. Libur, in a case of supposed invagination in the ileo-cæcal fossa, secured relief to the patient by injecting into the rectum a concentrated solution of bicarbonate of soda, and immediately afterwards a concentrated solution of tartaric acid.* A large quantity of gas was eliminated, which forcibly distended the intestinal tube. The gases and the fœcal matters forthwith escaped freely, and the relief was complete.

4. A young man had had an operation performed upon one of his arms, in which Esmarch's apparatus had been applied. Paralysis of motion followed, and the visiting surgeons were of the opinion that it had been caused by the pressure made upon the nerves in the ap plication of the rubber cord. Paralysis remained for about a month. Motion was being gradually restored.

5. Saint Germain, who advised opening the trachea with a button-shaped cautery iron, has tried the following modification of this operation on a three-year-old child, who was suffering from croup. Locating the cricothyroid membrane with his finger, he fixed the larynx firmly with one hand, while with the other he pressed a red-hot probe-pointed knife, directing the edge downward, into the larynx, just below the edge of the thyroid cartilage. There was no difficulty in doing this, and the loss of resistance showed that the knife had entered the cavity. The operator thus cut downwards through the cricoid cartilage and the first ring of the trachea. The operation was entirely bloodless. Using dilatation he

* The practice originated in this country.

readily introduced the canula. The case progressed favorably.

6. (*a.*) The third case reported (artificial anus in the right illiac region), is interesting as affording the opportunity to see outside of the abdomen, the ileo-cæcal valve and appendix vermiformis; also as illustrating the time it took, by hydrostatic pressure, for a stream of water to travel through the rectum and colon, which did not exceed one minute. From repeated experiments by Prof. Simon, it seems to make very little difference whether the patient was in the recumbent or erect position.

(*b.*) In the fifth case reported by Dr. Bozeman (retroflexion and prolapsus of the uterus), Prof. Simon illustrated in the most practical manner the subject of rectal and vesical explorations, by the passage of the hand in the rectum. This means of diagnosis, it is said, originated with the latter.

The passage of the *hand and arm*, per anum, to a point in the abdomen that the left kidney and false ribs can be felt, and the abdominal wall, of the same side, to the median line, be lifted up at every point, upon the ends of the fingers, is a means of diagnosis which should not be overlooked.

From what he has seen and heard of this procedure, at the clinique of Prof. Simon, the reporter is convinced that the dangers and accidents supposed to attend it have been greatly exaggerated. Now and then a little incontinence of fæces is observed, which, however, continues only two or three days.

The preparation for the operation consists in complete anæsthesia and in thoroughly washing out the large bowels, by hydrostatic pressure. From two to three quarts of water usually suffice. Prof. Simon has now operated eight times through the anus for recto-vaginal fistule. Why not, he suggests, approach the male bladder in the same manner in cases of chronic catarrh and

ulceration, and of great enlargement of the prostate gland, where micturition is attended with difficulty?

(*c.*) Another case served to illustrate the exploration of the female bladder, by the finger, through the urethra. Incontinence of urine had not followed the procedure. In the case under consideration, the bladder was filled with water, and the power of retention fully shown. The distention of the urethra is effected by means of a set of dilators, made of hard rubber, and ranging in size from that of the largest male catheter to that of the thumb. The dilatation is begun and carried on to the point of distention of the urethral orifice, when the latter is notched on the two sides and in front, the main seat of resistance. After this the requisite dilatation for the index finger to pass is easily reached.

Prof. Simon had turned the method to good account in a case of fungous growth from the vesical mucous membrane, which he diagnosed with the finger and detached with a gouge-shaped scraper. He had also satisfactorily employed the method in differentiating the size of a fistule, shut in by a colpocleidic operation, performed by another surgeon, the patient being dissatisfied with what she had been told was a cure. Upon examination he found the closure complete, and through the urethra only could he determine whether the fistule was small or large. Upon this point depended, he said, the justifiability or otherwise of re-establishing the vaginal tract. This method of vesical exploration with the finger showed the fistule to be small, and curable by refreshing and uniting its edges in the ordinary way. Thereupon the occluded vagina was opened and the fistule brought into view.

ARTICLE II.

PROGRESS OF OBSTETRICS.

BY E. WARREN SAWYER, M.D.,
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1. How do the Spermatozoa enter the Uterus? By JOSEPH R. BECK, M.D., Fort Wayne, Indiana. (*American Journal of Obstetrics and Diseases of Women and Children.* New York, November, 1874. Read before the American Medical Association, June 2, 1874.

1. In the above paper, which has the first place in the last number of the Journal of Obstetrics, the author has made a prolonged and wordy attempt to answer the question which apparently has concerned him not a little; and which, he informs us, has never before been answered. How far his effort has placed this question beyond doubt, the reflective reader will decide.

The first dozen pages are devoted to a tirade against all previous observers, for no other reason, it seems to us, than because they failed years ago to see what he has recently seen. We are surprised at this disposition, because it occurs to us as better taste to respect our teachers for what we have learned of them, and not to censure them for what they could not teach.

We are not conscious of a real need of apologizing for the omissions of those whose works have already made them known; but when he concludes that the doubts and opinions of Gardner place this observer "on the top of the fence," we ask permission of the author to remind him that it is always honest and often prudent to doubt, when we are not convinced; and if Gardner is really on the top of the fence in this matter, perhaps it is because that aspirating womb, in Fort Wayne, has not yet drawn him to either side.

Of Byford's work on the uterus, which he has vainly consulted on this point, he says "we might have expected some information, no matter how erroneous." We sincerely hope that this conclusion of the author is not the

expression of a principle which guides him in imparting knowledge to others; but rather that he seeks to have his observations confirmed, at least before they are given to the world as unquestionable truths.

Thomas escapes comment by the author because, he says, "there is nothing to comment upon;" though in the next edition of Thomas' work he hopes there will be more.

He is loud in praise of Sims; who "*almost came upon the truth.*" It seems to us that the theories of Sims detract from the originality of the author.

On page 363, we are startled with the definition of spermatozoids; (he prefers to call them spermatozoa,) "they are simply ciliated cells." If, indeed, the author has discovered that they are ciliated cells, it is not impossible that in this fact is the explanation of their peregrinations; may they not then be capable of extensive wanderings, even from the testicle to the ovary?

At last the author asserts that he will "answer the question in a positive manner, by a description of what he saw." Then follows an account of a married lady; a blonde of strongly marked nervous temperament; who came to be treated by him for a falling of the womb, which she had had since her abortion, six years before. Being cautioned by the lady to conduct his examination with great care, as her orgasm was easily aroused because of her passionate nature, he concludes that this is an opportunity for experimentation, such as had never before been offered to any one, and which should not now be lost. He now offends good taste by detailing how, when the mouth of the womb was brought clearly into view in the sunlight, he swept the right forefinger quickly three or four times across the space between the cervix and pubic arch, when almost instantly the orgasm occurred." Now mark what he saw; the mouth of the womb open to the extent of fully an inch; make five or six successive gasps, and instantly all was as before. What a spectacle! Fortunately for the lady, and per-

haps for science, the gasping womb did not seize upon the observer at this moment.

We are clearly told that the aspiration, which the uterus exerts is the explanation of the passage of the spermatozoids "*to their destination.*"*

This aspirating force of the uterus can only be comprehended by recalling its alleged capacity of drawing the spermatozoids to their destination, which physiologists have agreed is some part of the Fallopian tube. Engineers may learn something from this; for here are overcome greater physical obstacles than are presented in the scheme of a pneumatic railway.

The temerity of husbands would be something remarkable, did they continue their marital relations after being informed of this snapping-turtle function of a woman's uterus during coition.

It is but fair to say, that the author liberally admits, in exceptional instances, some other way of the passage of the sperm; but his is the usual way.

With corresponding liberality, we are ready to admit that what he saw, may explain the entrance of sperm into *that* womb, but we do not admit that the opening of the mouth of the womb, and the suction force of the organ, *are common phenomena*, or that they are necessary to the entrance of the sperm into the uterine cavity. We conclude this for four reasons, viz.:

First. Because impregnation has been known, more than once, to follow the depositing of semen upon the external genitalia, far out of the reach of the womb.

Second. There are some women who slip a tightly fitting rubber cap over the cervix uteri during coition; by which the cavity of the uterus is effectually closed. Now, how could any such remarkable opening and enlargement of the neck take place, during the orgasm, without painfully constricting the neck in the unyielding ring of the so-called "preventive pessary"; or with-

* Reviewer's italics.

out breaking this latter? We have never known either accident to occur. On the other hand, *we have known those women to become pregnant, who had sealed their womb against the entrance of the sperm, but who had incautiously removed this seal too soon after sexual intercourse, though hours after the orgasm had subsided.* It is now a common conclusion, among those women, that there is no security against impregnation, by wearing the pessary alone, *if, beside, the semen is not washed out of the vagina soon after coition.*

Third. Such a function of the uterus is incompatible with the state of pregnancy; for, should this sudden and remarkable successive opening and closing of the organ occur, while it contained an ovum, the latter would be most surely detached and expelled; in other words, the woman would abort the first time her orgasm was aroused; such, however, is not the case.

Finally. We do not think the opening and gasping of the uterus are constant freaks of the organ, because Dr. Wernich, from whom the author quotes, did not observe them; and his opportunities for observation were even fairer then the author's, because the position of all the parts was normal.

The last third of this paper is allowed to an interesting and profitable article "On the erectile properties of the lower segment of the uterus and its significance," by Dr. Wernich; who hopes some day to prove that a certain mechanism of the cervix uteri, which the erection induces, is necessary to conception.

We also conclude this review, hoping soon to be possessed of more well founded facts, connected with this interesting physiological problem.

Reports of Societies.

CHICAGO MEDICAL SOCIETY.

THE OBSTETRIC FORCEPS.

(Read before the Society, at its meeting held December 8, 1874.)

By PHILIP ADOLPHUS, M.D.

This paper will treat of the obstetric forceps.

We will not attempt an exhaustive article, but speak of those points only on which authorities differ. We will examine the subject, pointing out errors having the endorsement of eminent men, and stating the latest practical reforms.

A critical analysis of different authors will discover many conflicting directions; author has copied author, until an assertion or theory, unsupported by fact, has, by constant repetition, assumed the force of law. Much has been presented in an abstruse form, calculated to intimidate the physician, and restrain him from rendering assistance at the proper period.

Demonstrations on the "Phantom" had evidently given birth to rules which cannot be adopted in deliveries, without injuring the woman. Thus, the single curved forceps was first employed; and authors taught that the blades should always be applied "to the os parietal, and extending on either side, in the direction of the occipito-mental diameter of the head" (Bedford); whether the head presented antero-posteriorly, obliquely or transversely. When Levret and Smellie added the sacral curve to the instrument, most authorities, amongst whom we may note Simpson, Dewees, Meigs, Hodge, Bedford and Elliot, (although the double curve of the instrument was adapted solely to the sacral curve of the pelvis), still maintained that the blades of the forceps should be applied to the lateral portion of the child's head, regardless of its position in the pelvis.

Thus they teach even to-day, that the head in a trans-

verse position, in the superior strait, or cavity, or inferior strait, should be grasped by the forceps, with one blade applied in front of the sacrum, and the other in front of the symphysis pubis.

Moreover, eminent men, inexperienced in the use of the forceps, were afraid of its general introduction.

Thus, in Dr. Joseph Clarke's mastership of the Rotunda Hospital, Dublin, from 1787 to 1792, during which 10,287 deliveries took place, the forceps were used only 14 times; and in his private practice, extending over a period of forty years, during which he attended 2,878 labors, Dr. Clarke only once attempted to apply the forceps, and then did not succeed. (Collins' "Practical Midwifery," fol. 18.)

In the same hospital, under the mastership of Dr. Charles Johnson, from 1842 to 1845, in 6,702 deliveries, the forceps were only used in 18 cases.

I may give the statistics of the Royal Maternity Charity, as quoted by Dr. Ramsbotham, where, out of 48,996 deliveries, forceps, long and short, were used 73 times, or once in 671.2 cases. Consequently, the English became experts in embryotomy, and the lives of mothers and children were sacrificed, in just such cases, where the French, and especially the Germans, used the forceps. A glance at Churchhill's statistics will illustrate this.

In forceps cases 1 child in 5 dies, and 1 mother in 34; craniotomy necessarily destroys all the children, whilst the maternal mortality is estimated as 1 in 5.

Of late the double curved forceps are used where the perforator was formerly employed; nevertheless, the statistics of English and Continental midwifery, on this subject, show a marked difference in favor of the Germans.

The frequency of forceps cases has been estimated by Churchhill to be, amongst British practitioners, about 1 in 249; French, 1 in 140; and German, 1 in 106.

Churchhill lays down the rule, that forceps are to be applied in no case, till we are perfectly satisfied that the obstacle cannot be overcome by the natural powers with

safety to the mother and child, and in this opinion he is upheld by most authorities.

Dr. C. C. P. Clark, in Trans. N. Y. Med. Society, 1870, comments on this as follows: "It is such a rule as this, causing perilous delay, that makes this instrument, in crude statistical tables, seem the means of death."

The time will arrive, and it is foreshadowed now in the practice of not a few practitioners, when the forceps will be used—in cases where delivery would have terminated by the natural powers—whenever the second stage of labor ceases to be actively progressive. By this procedure, much anxiety, pain and exhaustion is spared the mother. It is especially indicated in primapara, where, owing to delay, so many children are still-born.

Prof. Thos. Savage (in British Med. Journal, Aug. 14, 1869, page 183,) illustrates this point. The following table shows his practice:

In 1864,	out of	73	labors,	forceps	were	used	3	times,	or 1 in	24⅓ labors.
" 1865,	"	154	"	"	"	"	15	"	" 1 in	10¼ "
" 1866,	"	173	"	"	"	"	18	"	" 1 in	9⅗ "
" 1867,	"	203	"	"	"	"	37	"	" 1 in	5½ "
" 1868,	"	204	"	"	"	"	31	"	" 1 in	6⅔ "
Total,		807	labors, in which forceps were used 104 times.							

Of these 807 cases, five children were still-born, and one maternal death occurred from puerperal fever. He states that in none of his cases has he found any ill effects afterwards, such as laceration of the soft parts, or extensive rupture of the perineum.

The best forceps for the general practitioner are those that can be used whenever a suitable indication for the delivery of the child presents itself, whatever the presentation of the head, and its position in the pelvis.

We therefore would reject the single curved forceps, because the shape does not accommodate itself to the direction and form of the pelvic axes; for it can be used only when the head is low down in the excavation, or close to the perineum.

The double forceps should be chosen, for they can be applied to any portion of the pelvis, the leverage is

greater, and any operation pertaining to this instrument can be performed with it. The possession of one forceps only is necessary. The multiplicity of instruments is a sign of weakness. The use of one instrument, perfectly adapted to the work it has to perform, is always a desideratum. Simpson, Hodge, as well as Barnes, advise the rejection of the short forceps, for the more efficient and powerful long instrument.

Therefore, whenever in this paper the forceps are mentioned, we do not allude to the short instrument, but to the long double curved forceps.

It is our duty to use the forceps, "whenever in a head presentation, with probable room for the head to traverse the pelvis, and with the os fully dilated, or partly dilated, and easily dilatable, the longer continuance of unaided labor involves danger either to the mother or the child."*

The forceps should also receive a tentative but patient trial in cases which require the mutilation of the fœtus; for the indications are often not to be distinguished, and can only be determined by trial.

Even symptoms *pointing towards* exhaustion, impaction and contusion, and *not merely the actual state* of exhaustion, collapse, contusion and inflammation, call for the application of the forceps.

Time as an element must not be considered: the state of the patient determines our action.

For a woman must be conducted through a labor, natural or instrumental, without a dangerous strain on her system. She must be relieved artificially, whenever, in spite of the administration of sedatives, the effects of irritation show themselves.

The administration of anæsthetics in forceps labors should be avoided, especially where long continued steady tractions are necessary to relieve the mother. It is a satisfaction in these cases, even to exceptionally skillful and experienced men, to be able to ascertain, by the expression of the patient's countenance, that no in-

* C. C. P. Clarke, op. cit.

jury is inflicted by the instrument. Besides, in just such cases, the non-administration of anæsthetics gives the child an additional chance of safety.

The forceps adapt themselves to the anatomical condition of the pelvis and soft parts, not to the position of the head. The blades of the forceps are fashioned to accord with the axes of the pelvis; their sacral curves must follow and coincide with the utero-vaginal curve; therefore, they must be introduced, placed into, and removed from within, the pelvis according to those laws. Any other course leads to the injury of the mother's parts.

In fact, authors who order the forceps to be placed along the child's head, place them, after locking, on the sides of the pelvis; for they insist (I quote Bedford's words, see fol. 56, Edit. 1871) that "*the head being in a diagonal position, after locking the instrument, and before making any extractive force, the first thing to be done is, gently to turn the forceps, for the purpose of producing the movement of rotation, which will necessarily change the head from the diagonal to the direct position.*" These directions are placed in italics, and he adds: "Many a child has been sacrificed, and the mother cruelly lacerated, from the neglect of this fundamental principle in delivery by forceps." Ramsbotham, however, states that when the impediment of the brim is overcome, the head turns of its own accord with face towards the hollow of the sacrum, *without the use of any directing power on our part.*

The same author says (Med. Times and Gazette, 1862): "In employing the short forceps, I lay it down as a rule, that the blades should be passed over the ears, the head is more under command when embraced laterally, and there is less danger of injuring the soft parts during extraction." He, however, adds: "*But I confess that I have for many years been accustomed, however low the head may be, to introduce the blades within each ilium,*

because they usually pass up more readily in that direction."

Dr. Barnes, commenting on this passage in his "Obstetrical Operations," says: I think I am not wrong in believing that many others do the same thing, some not knowing it, and even imagining that they are following the ancient rule. Therefore it is to the sides of the *pelvis*, and not to the sides of the *head*, that the blades of the forceps should be applied. If the child's head is placed diagonally, one blade, on being laid within each ilium, will fit the forehead, the other will apply itself to the occiput. The correctness of this assertion is proved by inspection of the head, after delivery, when the impress of the blades of the forceps over one of the oblique diameters of the fœtal head will be seen, and almost never along the parietal bones.

We herein follow the authority of the German accoucheurs, quoted by Cazeaux (fol. 69, ed. 1868), who recommend the blades to be placed on the sides of the pelvis in all cases.

This proposition once established, what amount of ambiguity, complexity and false teaching vanish! What becomes of the variations of application of this instrument, in the different positions of the head, at the inlet, cavity and outlet, which are taught us by authors! These may be practiced on the Phantom, but would crush the soft parts of the parturient patient.

Therefore place the patient on the back, as directed in the books, take the blades of the forceps, join them, and holding the instrument with the concavity of the pelvic curve forward, and the blades in the position they ought to occupy in the pelvis.

Consider, that you are about to embrace between them the globular head of the fœtus, which you know is within the pelvis; that you therefore must pass the separated blades within the pelvis, according to correct anatomical principles; placing one within the left and the other within the right ilium, the convex portion of the forceps

fitting the concave portion of the sacrum. Consider also that, having placed them opposite each other, you have to lock them; and after locking, the two blades with the head of the child must become a unity. Thus, the handles being grasped, the child is to be extracted by following the anatomical curve of the sacrum, vagina and perineum.

Then proceed to separate the warmed and oiled blades, and take the left or male blade near the centre, into your left hand, and introduce it into the vulva, slip it along the two fingers of the right hand, put between the cervix uteri and the child's head: it will guide itself and be placed alongside the left lateral portion of the pelvis, embracing the head. Leaving it in the hands of an assistant, take the right or female blade into your right hand, introduce it into the vulva, along the palps of the fingers of the left hand, which are placed between the os uteri and the child's head, and it will guide itself along and within the right lateral portion of the pelvis, and these embrace that part of the head which it will find there.

Do not look for any particular portion of the child's head; disregard its position, but be sure to regard the anatomy of the hard and soft parts of the pelvis.

Your blades, thus anatomically conducted, will enter easily, instinctively and unerringly, and will place themselves on each side of the globular head, which they will embrace.

Do not watch the handles of your forceps, as the books teach you, do not burden your memories with a thousand details, which you will forget at the bedside. Let your brain have a thorough conception of the anatomy of the pelvis, its containing head, the adapting curves of the forceps, and the act you are to perform: the hand will then execute the bidding of the will, when the blades of the forceps disappear from sight.

Your forceps will lock easily, provided you have met with no resistance during their introduction. If you meet

with it, you must overcome it by a gentle backward, upward and inward movement, which will result in placing the blades fairly upon the head, at the same time carrying them back into the axis of that part of the utero-vaginal canal in which the head is situated.

If you cannot lock the forceps, after fair and skillful trial, remove the blades, examine the pelvis, look for deformities, and determine between turning and craniotomy.

Then extract, steadily, an assistant pressing the retreating uterus downwards. Rest, during the absence of a pain; extract according to the anatomical direction of the sacrum, vagina and perineum, until the child is born.

Authors tell us, whilst the head is distending the perineum, during the use of the forceps, to sustain it, or have it sustained. The practitioner cannot extract in difficult cases, and support the perineum at the same time. Moreover, assistants, skilled or otherwise, obscure the parts, and prevent the practitioner from seeing and feeling the amount of distention. There is less chance of its rupture in forceps operations, for the perineum is distended gradually, intelligently and anatomically, by the will of the physician. Should, however, a predisposition to laceration exist, it cannot be avoided.

How much traction and pressure you can apply in the extraction of the head cannot be taught. In ordinary cases, as little as possible; in difficult cases, as much as experience and intuition will teach. It may be necessary, in extreme cases, (namely in occipito-posterior positions, which are further complicated by disproportion between the pelvis and the head) to brace the foot against the sides of the bed, to pull with your arms (and not with your back) until overcome by sheer exhaustion. Some authorities call this bad practice, but it is not so, for it has saved many a child from the crotchet.

To use the words of Elliot, "You may find that just such tractions are the only ones which can terminate a labor without recourse to embryotomy; and that just

such tractions, repeated again if necessary, may alone justify the subsequent resort to embryotomy."

Is the use of the forceps dangerous?

In cases where no deformity of the pelvis exists, when the head has rotated under the arch of the pubis, or when it is within the pelvis, the use of the forceps is without danger to mother and child. Gentle tractions, with an occasional oscillation, will suffice to deliver the head. These represent the majority of cases.

There is danger of bruising the soft parts of the mother, in the use of the forceps.

1st. We should be careful when applying the blades, to introduce them within the os uteri, and not between the vagina and the neck of the womb. We should feel for the edge of the os uteri, place the palps of our fingers on it, and, guarded by these, slip the blade of the forceps within the os uteri; else we perforate the cul-de-sac of vagina, and penetrate into the peritoneum.

2nd. If we follow the directions of reputed authors, and apply the long forceps to the sides of the head, when according to Byford, "it is situated diagonally with reference to pelvic curves, we incur much danger of touching the sides of the pelvis with the end of the blades, and bringing them in contact with the ramus of the ischium, at the outlet, and thus dangerously contusing the soft parts at these points." He adds, "I think, indeed, that there is very much more damage done to the soft parts of the mother, by making the diagonal application of the curved forceps, than there would be, if the rule was to use them with reference to the pelvic curves entirely." (Byford, fol. 317, ed. 1873.)

3rd. The direction of Tarnier and others, to correct a transverse or posterior occipital position, by rotating the forceps, after having applied it to the sides of the head, upon its own axis, in order to turn the head in the cavity of the pelvis from behind forward, bringing it first to the side of the pelvis and finally behind the pubis, *should be condemned*. If followed, extensive lacerations, con-

tusions, and their consequences must result. These cases should be left to nature, for according to Miller and Leishman, anterior rotation will in most instances be effected. Should this not occur, apply the forceps on the sides of the pelvis, and deliver with the occiput posteriorly.

4th. Should great obstacles to the delivery of the head exist, traction, as we have already stated, must be increased; the greater the traction, the greater the pressure. Increased pressure means danger to the child's life. Accordingly we have, as described by Schroeder, superficial dermatitis, suggillations and even circumscribed gangrene externally, and lacerations of the venous sinuses, and of other bloodvessels of the cranium within, which often produce the death of the child. Yet the use of force is justifiable, and is the only choice left the operator; craniotomy would otherwise have to be performed. Hodge's remarks on this point are so just that I will reproduce them here; and his views on this point are endorsed by Dewees, Barnes, Elliot, and Schroeder. He says: "our practice must be regulated not so much by the idea how much compression can be borne with impunity, but how much is absolutely demanded to accomplish delivery;" and Elliot states that great traction and compression offer the child a chance that the perforator can never offer, and therein lies its advantage.

In concluding, a few words may be said of the use of the forceps, when the head is above the superior strait.

The forceps ought not to be used when the head is floating and movable above the superior strait. We should wait until it becomes wedged into the pelvis. "In the contracted pelvis, the use of the forceps is contra-indicated until the head has passed through the contracted brim. (Schroeder, fol. 178, ed. 1874.)

Should the life of the mother and the child be endangered by convulsions, hemorrhage, prolapse of the cord, or excessive volume of the head, we must turn and deliver. Almost all authorities are agreed on this point,

yet every one gives the rules of procedure of a plan which they condemn.

Dr. Paoli: The paper is well prepared, but better adapted to be read before a class of students than before a society of physicians; reports of cases from every day experience would be of more profit to the Society.

Dr. Earle: Favors the use of forceps as often as necessary, but objects to their employment as a means of saving time. Hemorrhage is more likely to occur where forceps are used and delivery hastened, and it is desirable to make pressure on the abdomen following the contracting uterus as the child is being withdrawn.

Dr. Bridge: Had used pressure over uterus to facilitate labor without the success he was led to expect from the advocates of this method. He agreed with the author, and believed that the use of forceps was the subject of the day and hour in obstetrics.

Dr. Quine: Concurs with the author's views except in that he believes it practicable and advisable to apply the forceps in some cases before the head is engaged in the superior strait; he has used them twice in this way, and without encountering great difficulty. The instruments may be used oftener than there is need, but it is better to err in this direction than to be too hesitating in their employment. Forceps may be used to obviate laceration of the perineum. It is not so difficult as it seems to be imagined to adjust the forceps before the head is engaged in the superior strait, and in such cases where there is an urgent indication for speedy delivery, he considers it his duty to try the forceps before resorting to podalic version.

Dr. Adolphus: The uterus, if foiled, works itself into a fury and tends to produce laceration of the perineum, but we may by the forceps regulate the degree of tension of the soft parts. Forceps are not used as often as they should be in this country. Where the contractions, from their energy and frequency, render the occurrence of laceration probable, he is in the habit of prescribing mor-

phine, sometimes with and sometimes without ant. et pot. tart. When a young man fails in the application of the forceps it is the fault of his teacher, he prefers to make version rather than attempt to use forceps before the head is engaged in the superior strait.

Dr. Hutchinson: Used forceps without hesitation when it was necessary to do so; he applied them in a common sense way and *held on*, and he considers the directions for their application to particular parts of the child's head to be unworthy of serious consideration.

Dr. Pearson: Considers the use of forceps above the superior strait preferable to version. Toward the close of the meeting this gentleman tendered his resignation as a member of the Society, which was accepted.

CENTRAL ILLINOIS MEDICAL SOCIETY.

REPORT ON "MINOR OPERATIONS IN SURGERY."

(Read before the Society, at its meeting held at Gibson, Dec. 8, 1874.)

By J. L. WHITE, M.D., of Bloomington.

Since the last meeting of this Society no great event has transpired to make an era in the history of surgical science, and I find it difficult to offer you a report confined to the surgery of the past six months. I have therefore chosen rather to call your attention to the little things connected with the practice of surgery, or such of them as occur to my mind, hoping some little item may prove of importance to you all, and that the paper may elicit from you items of interest and importance to me. In the affairs of life, little things, trifling in themselves, many times hardly deemed worthy of notice, make up the sum to individuals of human happiness or misery. It is notorious that, many times, little trials and annoyances of daily occurrence, to which all are subject, are borne with less fortitude than some great misfortune, coming perhaps but once in a lifetime. So, on the other hand, as our earth is made up of little atoms, little

items of knowlege—many of them so small as often to be deemed unworthy of attention—go to make up the expert in every department of the broad domain of science. In our medical colleges the great facts of surgery, both scientific and operative, are clearly set forth, and the principles upon which the science rests faithfully enunciated; but many of the minor details are left for each individual to discover for himself, as best he may, and there are but few surgeons who do not often gather little facts, not noticed by standard authors, a previous knowledge of which they realize would have been of advantage to them and their patients.

Among mechanics, one of the best evidences of the skilled workman is the manner and condition in which his tools are kept. "A place for everything and everything in its place," is a motto which should be ever present in the mind of a surgeon. To be able to lay your hands on any instrument wanted at any time, by night or day, or to tell any one just where in your office it may be found, is very desirable, and many times very important. To do this, your armentaria must be kept under lock and key. This is desirable for another reason. Instruments exposed to view and to reach are liable to be handled by curious, thoughtless observers, and are also more liable to become damp and to rust.

When an operation is to be performed, every instrument, ligature or appliance that may possibly be required should be spread out in such a way that they may be within easy reach and in perfect view of the operator; and this arrangement should be made out of sight of the patient. Nothing more completely distinguishes the refined, gentlemanly, cultured surgeon from the boor, than his constant, watchful regard for the feelings of his patient, whose mind is harassed with anxiety and doubt, even though the operation may be a very simple one.

The surgeon should be courageous, and unflinchingly do what is required of him, but the one who has no compassion and no word of kindness for the unfortunates

compelled to seek his aid, is unworthy of, and a disgrace to, the profession.

The principle upon which an instrument is made should be borne in mind, in order to its skillful use. Every cutting surgical instrument should be looked upon as a fine saw: some with the teeth set forward, towards the point, and these cut best from point to heel, as does a razor; but the greater number are set in the opposite direction—for example, the common scalpel and bistoury—and act efficiently only when drawn from heel to point. This principle is to be borne in mind when sharpening an instrument, which most of us, living away from great centres, are obliged to do for ourselves.

The points of forceps and scissors should be kept oiled and in good easy working condition. All instruments, after use, should be made perfectly dry, and when liable to be seldom used, should be rubbed with a flannel dampened with kerosene before being put away. In operations where no anæsthetic is used, we should remember that less pain is produced when cutting from within outwards, than in a contrary direction; hence a scalpel should be held at right angles to the part to be cut and made to penetrate directly to the desired depth, and so held while the incision is being carried to the required length that the deepest part of the incision is first made. In opening a boil or carbuncle, it hurts less to thrust a bistoury through the base and cut out than to cut down from the apex; so in closing a wound with sutures, the thread should have a needle at either end and be introduced and drawn through from within outward. When anæsthetics are used and danger threatens therefrom, the prevailing opinion is, that it is due to a paralyzed condition of the brain, and the rational treatment is to supply the brain with blood as rapidly as possible, which is to be done by holding the patient up with head hanging down. If this fails to restore vitality in a moment or two, proceed immediately to artificial respiration.

In dressing scalp wounds take time enough to clean the

wound completely, being careful to see that no hairs are left between the lips of the wound. When possible, draw the edges together by braiding the hair or tying it together over the wound. Sutures are to be avoided if not imperatively demanded in scalp wounds, because sometimes the extra irritation they produce is sufficient to develop erysipelatous inflammation. In removing encysted tumors from beneath the scalp, it is not necessary to dissect them out. If a sufficiently long incision is made over the tumor and completely down to it, being careful not to cut the cyst wall, the tumor can be easily squeezed out with the thumbs.

In cases of fracture of the skull, and especially if the fracture is of the external table only, the most efficient instrument in raising the depressed portion, in my hands, has been a common sewing awl, such as may be found in the possession of any shoemaker.

I know of no better instrument for removing particles of steel or iron from the eye than a match, with the end sharpened a little. The foreign particle adheres to it better and less injury is inflicted upon surrounding parts than when the point of a lancet is used. When particles of dirt adhere to the upper lid, the drawing of the lid well down over the under lid and holding it for a moment or two enables the winkers of the lower lid to wipe away the offending particle.

In any operation within the nostrils, or in removing of foreign substances, great aid is afforded by hooks made by bending the ends of a couple of rubber hair pins and fastening the pins to a piece of elastic long enough with a little stretching to go around the head ; then hooking the bent ends of one pin in one nostril, carrying the rubber around the head and hooking ends of the other pin in opposite nostril, the calibre of each nostril is enlarged in every direction and so held without the aid of any assistant.

In removing such substances as a kernel of corn or cherry stone which children are very apt to thrust into

the nose or external meatus of the ear, and which are very apt to slip away from the grasp of forceps, the dipping the end of a pencil in solution of gum arabic or glue and holding it gently for a moment in contact with the substance, when sufficient adhesion will have taken place so that it can be withdrawn, or in the event of this experiment proving a failure, one or two horse hairs bent upon themselves in loops may be passed over the substance and by a little manipulation made to catch on the back side, when it may very readily be withdrawn.

The removal of a splinter from the finger or elsewhere, can frequently be accomplished by pressing firmly over it in the direction of its entrance with a small tube; the barrel of an ordinary watch key answers very well when the splinter is small. The pressure all around it forces the splinter up into the tube.

In dislocations of the phalanges if the phalange is bent back to an acute angle and pressure made with the thumbs on base of phalange, and at the same time with forefingers on end of bone from which it is dislocated, its reduction is generally easily effected, whereas by ordinary traction great force is required. Frequently, a dislocation of the shoulder into the axilla may be easily reduced, when other means have failed, by seating your patient on the floor with his back against a bed, then getting on the bed, taking hold of his hand and putting one foot on top of shoulder, pulling the hand and arm straight upwards.

In dislocation of the acromial end of the clavicle, which is often very difficult to keep in place by ordinary methods, I have succeeded by making a loop of adhesive plaster on the back, coming nearly up to top of shoulder, and a corresponding one on breast in front, then springing a piece of whalebone from one loop to the other over a compress on seat of dislocation and allowing it to remain until adhesions take place.

Inguinal hernia may sometimes be reduced when ordinary taxis fails, by pushing the thumb forcibly

through the inguinal canal by the side of the descended intestine. I have been informed Dr. Hill once read a paper before this Society on this subject.

Nothing in my hands gives so prompt and effectual relief in orchitis, as painting the whole scrotum with a *strong* solution of nitrate of silver.

In those hard hemorrhoidal tumors found on the very verge of the anus there is no danger to be apprehended from the use of the lancet. To slit them open freely and turn out the clot is safe and very efficacious treatment. In fissures within the rectum, thorough scarification through the mucous membrane at right angles to the fissure, is pretty sure to result in cure.

In operations on the rectum, in the female, the rectum may be inverted by introducing finger into the vagina and pressing downwards and backwards, forcing it out through anus. In one case of hemorrhoidal tumors where there was a constant disposition to protrusion, great relief was found from the use of the hard rubber "pile supporter," which in this case was worn without the slightest inconvenience.

In prolapsus ani, great relief is afforded by a strip of adhesive plaster between the nates over the anus and extending an inch or more, front and back.

In chilblains, much and often permanent relief is found from painting the foot with a strong solution of carbolic acid in glycerine.

In cases of needle, glass or other substances in sole of foot, the application of Esmarch's bandage so as to completely blanch the foot, enables one easily to cut down upon and find the offending substance.

In ingrowing toe-nail the introduction under corner of nail of a small piece of compressed sponge (sponge tent) about the size of a grain of wheat gradually and without much pain, lifts the nail out of its unpleasant position, and the occasional introduction of a fresh piece perfects the cure.

In glandular and other swellings, I have never been

able to find a better discutient than strong tincture of camphor. In my hands it has proved more effectual than iodine.

The combined wisdom of the ages has failed to discover any better dressing for ordinary wounds than pure water. When it is convenient to do it, the keeping of a wounded part in as hot water as can be borne, very much facilitates a cure and comes near to furnishing immunity from pain. It is necessary, however, that the water be kept all the time at a high temperature, which generally in ordinary practice it is almost impossible to do.

We are frequently consulted in cases of children unable to retain their urine at night. When remedies directed to a removal of the cause fail to produce the desired result in boys, a drop of collodion on end of prepuce furnishes protection to the bed until picked off.

Rubber bands for splints.

The tendency of the times is to a greater conservatism in surgery as in everything else. It is coming to be more generally recognized that it is more the province of the surgeon to cure than to cut. A part should never be sacrificed except when the demand for such sacrifice is imperative. To save a part which formerly would have been unhesitatingly removed, is a triumph of advancing surgical civilization, and one which, I am most happy to be able to say, is not unfrequently witnessed.

Clinics.

ILLINOIS CHARITABLE EYE AND EAR INFIRMARY.

Clinical Lectures on Diseases of the Eye,

By E. L. HOLMES, M.D.

SYMPATHETIC OPHTHALMITIS.

Gentlemen: You have the opportunity to-day of examining two cases, illustrating the history of a most important disease—a history comprising one of the saddest chapters in ophthalmic surgery; for the danger in many of these cases is extreme, although the symptoms are often so trifling and insidious as to excite no suspicion of an impending calamity in the minds of the patient or of the inexperienced practitioner.

The disease is usually termed sympathetic ophthalmitis. Its history in general is briefly this: a patient receives a wound in one eye in some one of the following ways; a fragment of metal or other substance has passed through the walls of the eye and become lodged in the intra-ocular tissues; a puncture has occurred near the union of the sclerotic and cornea; or there has been some serious injury of the globe, causing inflammation of the iris, ciliary bodies, and choroid. Less frequently, perhaps, the patient suffers with inflammation caused by a dislocated lens, or with chronic irido-choroiditis, with calcareous degeneration of the lens or choroid.

If the abnormal process in any of the above described diseases terminated in the eye originally injured and did not affect the sound one, there would be comparatively little harm, for a patient with only one perfect eye, though unfortunate, is many fold more fortunate than one who has lost both eyes.

Unhappily, as you observe in both these cases, the *unaffected eye* too often becomes the seat of a sympathetic inflammation of the choroid and iris, which can almost never be relieved, if it once commences, before vision is partially or totally destroyed.

Your future experience will undoubtedly teach you that the presence of a foreign body, as a fragment of percussion cap or steel, is the most frequent cause of danger. In regard to this class of injuries, a few points are worthy of notice. In ordinary cases, the removal of a foreign body from the vitreous humor is impossible, for hemorrhage, or, if the case has been neglected, the products of inflammation, conceal it from view. Even where the pupil is readily dilated and the object easily observed by the ophthalmoscope, the removal can rarely be accomplished, and in exceptional cases only by the most skillful use of instruments.

A foreign substance in the iris or lens may be removed with the surrounding portion of iris by iridectomy, or by the extraction of the lens as in the operation for cataract.

A minute fragment of heavy substance, thrown with sufficient force against the globe to make a puncture in its walls, has almost certainly passed into the intra-ocular tissues. Such a body often leaves an opening apparently more minute than the body itself.

You should remember, however, that a minute puncture may be made by a delicate point of a large body; but in such a case the piece is usually found after it rebounded from the eye.

The sensations of the patient are generally of no value in establishing a diagnosis whether there is or is not a foreign body in the globe.

From what has been said you are aware that an iridochoroiditis, however produced, is the disease predisposing to a sympathetic action in the other eye. The danger to the other eye is especially great when there is a persistent tenderness on gentle pressure over the region of the ciliary processes of the eye primarily affected.

The sympathetic inflammation is caused by an irritation of the ciliary nerves of the sound eye, induced by the diseased condition of the corresponding nerves in the injured one; and yet it is a fact, that, after the extirpation of an eye, amaurotic symptoms are occasionally

observed in the remaining eye, in consequence of irritation of the end of the optic nerve by an ill-fitting artificial eye or from a constriction of the nerve in cicatricial tissue.

The symptoms of sympathetic ophthalmitis are, photophobia, dimness of vision, lachrymation, and especially an immovable and irregular pupil, the iris becoming attached to the anterior surface of the lens. As there is often but little pain, and as the symptoms develop very gradually, danger is often unsuspected. The symptoms may appear in three or four weeks. I have known a patient who lost a remaining sound eye after suffering periodic attacks of pain and inflammation in an injured eye for fifteen years.

In regard to treatment, there is comparatively little to be said, but that little is of vast importance. In every case where a foreign body in the globe cannot be extracted, the eye should be extirpated without delay. The same operation should be performed in all cases of atrophied globe, where there is an obstinate, long continued inflammation with neuralgia, and tenderness on pressure, which the ordinary remedies for irido-choroiditis have failed to relieve. It is of great importance that the patient should carefully protect the eye from the influence of strong light, dust, use of the eye in reading or writing, for this exposure tends to hasten the sympathetic inflammation.

Let us now turn to the history of the two cases before you.

Mr. ——, æt. 27, a mechanic, tossed a hatchet upon the floor. A very minute fragment from the edge of the tool was broken off and flew into the left eye. A couple of days after the accident, I made an examination, and found a minute opening in the sclerotic near the corneal border, blood in the anterior chamber to such an extent that the portions behind the pupil could not be seen. I expressed the opinion that the piece of metal was still in the globe, and urged the immediate extirpation of the latter. The patient, however, preferred to return home, some distance from Chicago, and await developments, although I described the possible dangers of the delay.

In about seven weeks he returned almost blind in the other eye from a severe irido-choroiditis. The patient based his reason for this delay on the fact that his friends had mentioned a case, in which a piece of steel had remained eleven years in an eye without serious consequences to the other eye. The globe was extirpated nearly eight weeks after the accident, too late, however, to modify the inflammatory action in the other eye. The piece of steel was found in the ciliary muscle. In this case you observe a glaucomatous process in the remaining eye, the great tension (hardness) of the globe being readily felt by gentle palpation with the tips of the two fore fingers. The disease has not yielded to iridectomy nor the use of pot. iod. and mercurials. The prognosis is certainly most grave.

In the other case before you, we have the following history: The young man, 20 years of age, received a piece of steel in the right eye a year ago last December. It was removed from the eye by his family physician, at the end of about seven weeks, the walls of the globe being left. Unfortunately the other eye became inflamed and gradually almost blind. At present we find the injured eye atrophied, without inflammation. The other is also without inflammation, but is partially atrophied, the tension being much less than normal. There is a cataractous lens with iris very extensively attached, and still the patient can see to go alone in the street, although with difficulty. As there is scarcely a hope that iridectomy would improve vision, and as the sight is slightly improving under the use of iodide of potash and atropine, we will, for the present, follow no other treatment.*

I cannot close these remarks without urging you to make this chapter of ophthalmology a subject of special study.

* I would insist upon the operation of iridectomy, if the iris was even slightly raised above the surface of the lens. It is, however, atrophied, and undoubtedly attached to the lens throughout its whole posterior surface.

You will at times be called upon to exercise your utmost prudence. Just as the question whether you should amputate a limb or attempt to save it, may be a very difficult one to solve at the proper time, so will be the question whether you should extirpate an eye or attempt to save it.

RUSH MEDICAL COLLEGE.

Clinic by PROF. GUNN. *December* 31, 1874.

(Reported by HENRY L. HARRINGTON.)

CASE — Fracture of the Os Innominatum at the bottom of the Acetabulum.

Son of R. J. Fowler; aged 11. The patient, a well developed, robust lad, comes from Storm Lake, Iowa, for advice, giving the following history:

Thirteen days ago he was thrown from a horse in a frozen ploughed field; when picked up he was found lying with his right hip upon a large frozen clod.

A physician was called, who pronounced it a case of fracture of the ala of the right ilium and treated accordingly. Eight days afterwards, the father, suspecting that all was not right, called in consultation other physicians, who decided that the head of the femur was dislocated into the thyroid foramen: accordingly strenuous efforts were made at reduction, but without avail. The patient was able at all times to move the injured limb, and walked about the house the fifth day after the injury. He did not at any time suffer from fever, nor from any other symptoms of constitutional disturbance.

On examination, we notice when the patient is walking, a decided halt in his gait. When standing, we observe marked flattening of the right trochanteric region; great apparent lengthening of the right leg; slight eversion of the right foot; and also that his body is strongly inclined towards the right side, and slightly bowed forwards. At this stage of the examination I suspect that we have downward and forward dislocation of the femur. Upon

placing the patient in the supine position and searching carefully in the groin for the head of the bone we fail to find it; we also find that the body and legs are straight, and that although the foot is everted, it can be rotated inwards voluntarily co-extensive with the sound side. Upon careful measurement we find that the elongation is *only* apparent, and due to the inclination of the pelvis. Again, upon putting the leg through its motions, we notice, that with the exception of extreme flexion and extension, they are as perfect and as devoid of pain as those of the left limb. We will now be obliged to give up entirely the idea of dislocation.

There is only one positive sign left upon which to base a diagnosis, *i. e.*, the flattening of the trochanteric region. This is so great, that a straight edge placed along the outer side of the injured side, rests upon the external malleolus, the great trochanter and the crest of the ilium, while upon the sound side it rests upon the malleolus and great trochanter only, being separated from the crest of the ilium at least one and one-fourth inches. Can it be an impacted fracture of the neck? I think not, from the fact that it would not account for the degree of flattening present; for the reason that in that injury we usually have some shortening, and also because the efforts at reduction would probably have separated the fragments. We must, therefore, look to the inner extremity for the injury. I do not think it can be impaction of the neck within the head, because that would not account for the flattening. I am now of the opinion that we have a fracture at the bottom of the acetabulum, with bulging inwards of the fragments, which allows the head of the femur to occupy a plane nearer the mesian line of the body. To confirm or to refute this diagnosis, the patient was placed under the influence of ether, and an examination made per rectum, which revealed a prominent tumor projecting into the pelvic cavity, corresponding in position to the right acetabulum.

It is a remarkable case, from the fact that we have had

no symptoms of inflammation of the pelvic organs or tissues. No treatment is required; the lad will undoubtedly regain very good use of the leg.

Editors' Book Table.

[NOTE. — All works reviewed in the pages of the CHICAGO MEDICAL JOURNAL may be found in the extensive stock of W. B. KEEN, COOKE & CO., whose catalogue of Medical Books will be sent to any address upon request.]

THERAPEUTICS AND MATERIA MEDICA. A Systematic Treatise on the Action and Uses of Medical Agents, including their Description and History. By *Alfred Stille, M.D.*, Professor of the Theory and Practice of Medicine and of Clinical Medicine in the University of Pennsylvania, etc., etc. Fourth edition, thoroughly revised and enlarged; in two volumes. Philadelphia: Henry C. Lea. 1874.

From the publication of the first edition "Stille's Therapeutics" has been one of the classics; its absence from our libraries would create a vacuum which could be filled by no other work in the language, and its presence supplies, in the two volumes of the present edition, a whole cyclopædia of therapeutics.

The present is simply an improvement upon the former edition, not in plan and scope of its matter, nor in the style of its presentation, for the breadth of the one and the elegance of the other scarcely admitted improvement, but in the additional matter, whose introduction has been necessitated by the advances in science, and also in the evidences of careful revision to which the whole has been subjected.

The new matter added constitutes about two hundred and fifty pages, of which the article upon Electricity covers a considerable portion. The author is a most uncompromising champion of the exclusive value of clinical experience as the basis for the determination of the thera-

peutic application of medicine, and considers the deduction of the "therapeutical uses of medicines from their physiological action" as a "mischievous error,"—which opinion we beg leave to deprecate as altogether too exclusive, as clinical medicine without physiological experiment would lack one of its most efficient guides, one of its sources of enlightenment, without whose aid it would grope doubtfully in the darkness of empiricism ; and physiological experiment without the endorsement of clinical observation, would lack its only reliable certificate of therapeutic usefulness.

The language and style of the work evinces the professional erudition and scholastic accomplishment of the author, and, aside from its scientific and practical value, will serve as a model for professional authors who have yet to learn that the medical man is not the worse physician for being the accomplished scholar. H.

PAMPHLETS RECEIVED.

A Brass Ring Lodged in the Larynx for Four Years Removed by Sub Hyoidean Laryngotomy. Cure, by *Geo. M. Lefferts, M.D.*, Surgeon to the New York Eye and Ear Infirmary. 1875.

Transactions of the American Otological Society. Seventh Annual Meeting. Newport, R. I., July 15, 1874.

How do Spermatozoa Enter the Uterus? By *Joseph R. Beck, M.D.*, Fort Wayne, Indiana. Reprinted from the American Journal of Obstetrics for November, 1874. New York: Wm. Wood & Co. 1874.

On Reflex Irritations throughout the Genito-Urinary Tract, Resulting from Contraction of the Urethra at or near the Meatus Urinarius, Congenital or Acquired. By *Fessenden N. Otis, M.D.* 1875.

Letter to the Committee of Citizens of the proposed Schuylkill Drove Yard and Abattoir. By *Jno. H. Rauch, M.D.*, Treasurer of the American Health Association, late Sanitary Superintendent of Chicago, Ill. Philadelphia. 1874.

Contributions to the Annals of Medical Progress and Medical Education in the United States, before and during the War of Independence. By *Joseph Toner, M.D.*, Washington: Government Printing Office. 1874.

REPORT OF THE HEALTH OFFICER OF THE CITY AND COUNTY OF SAN FRANCISCO, for the Fiscal Year ending June 30, 1874. By *Henry Gibbons, Jr.*, Health Officer. San Francisco. 1874.

DYSMENORRHEA—A paper read before the Sacramento Society for Medical Improvement, June 16, 1874, by *J. E. Oatman, M.D.*

MEDICO-LEGAL SOCIETY OF THE CITY OF NEW YORK. Third Inaugural Address of *Clark Bell, Esq.*, Nov. 27, 1874.

SEVENTH ANNUAL REPORT, with the Constitution and List of Subscribers of the Toronto Eye and Ear Infirmary. 1874.

FREE PHOSPHORUS IN MEDICINE, WITH SPECIAL REFERENCE TO ITS USE IN NEURALGIA; A Contribution to Materia Medica and Therapeutics. By *J. Ashburton Thompson*, Surgeon at King's Cross to the Great Northern Railway Company, Surgeon Accoucheur to the Royal Maternity Charity. London: H. K. Lewis, 136 Gower street, W. C. 1874.

THE DISEASES OF THE STOMACH; being the third edition of the "Diagnosis and Treatment of the Varieties of Dyspepsia." Revised and Enlarged. By *Wilson Fox, F.R.C.P., F.R.S.*, Physician Extraordinary to her Majesty the Queen, etc. Philadelphia: Henry C. Lea. 1875.

JOURNALS RECEIVED.

The Atlanta Medical and Surgical Journal—December 1874, January, 1875.
The American Medical Weekly, Louisville—December 26, Jan. 2, 9, 16.
The American Journal of Insanity—January, 1875.
The American Practitioner, Louisville—January, 1875.
The American Journal of Medical Sciences—January, 1875.
L'Anatomie et de la Physiologie Journal de l'homme et des Animaux—Charles Robin. Paris. 1875.
The Boston Medical and Surgical Journal—Jan. 1, 7, 14, 21.
The Boston Journal of Chemistry—January, 1875.
The Clinic, Dec. 26, Jan. 2, 16, 23.
The Cincinnati Lancet and Observer—January, 1875.
The Canada Medical and Surgical Journal—January, 1875.
The Druggists' Circular—January, 1875.
The Detroit Review of Medicine and Surgery—January, 1875.
The Dental Cosmos—January, 1875.
The Indiana Journal of Medicine—Dec., 1874, Jan., 1875.
The Kansas City Medical Journal—December, 1874.
The London Lancet—December, 1874, Jan., 1875.
The Laboratory, Boston—December, 1874.

The Medical Times, Philadelphia—Dec. 26, Jan. 2, 9, 16, 23.
The Medical and Surgical Reporter, Philadelphia—Dec. 26, Jan. 2, 9, 16, 23.
The Medical Record, New York—January 2, 9, 16, 23.
The Medical Examiner, Chicago—January 1, 15.
The Medical Press and Circular—London, Dec. 23, 1874.
The Missouri Clinical Record—St. Louis, January, 1875.
The Medical Herald, Kansas City, January 1, 1875.
The Medical News and Library, Philadelphia—January, 1875.
The Monthly Abstract of Medical Science—January, 1875.
The Nashville Journal of Medicine and Surgery—January, 1875.
The New York Medical Journal—January, 1875.
The Ohio Medical and Surgical Reporter—January, 1875.
The Psychological and Medico-Legal Journal—December, 1874, January, 1875.
The Practitioner—Dec., 1874, Jan., 1875.
The Pharmacist, Chicago—January, 1875.
The Pharmacal Gazette, Nashville, Tenn.—Jan. 6 and 13.
The Pacific Medical and Surgical Journal—January.
Le Progres Medical, Paris—Nos. 46, 47, 48, 49, 50, 51, 52.
The Peninsular Journal, Detroit—January, 1875.
The Practitioner.
The Richmond and Louisville Medical and Surgical Journal—December.
El Repertorio Jalisciense, Guadalajara—Nos. 3, 4, 5.
The Sanitary Journal, Toronto—January, 1875.
The Southern Medical Record, Atlanta—December, 1874.
The St. Louis Medical and Surgical Journal—January, 1875.
The Virginia Medical Monthly—January, 1875.

Meeting of the Alumni of the Albany Medical College.

The Second Annual Meeting of the "Association of the Alumni of the Albany Medical College" was held in the City of Albany on Tuesday, Dec. 22nd. The following officers were elected for the ensuing year:

President—Dr. Jno. H. Beech ('41), Michigan. *Vice-Presidents*—Drs. Alson D. Hull ('41), New York; B. A. Mynderse ('53), New York; Alex. Shiland ('53), New York; Sol. Van Etten ('53), New York, and Charles L. Spencer ('57), Massachusetts. *Secretary*—Dr. Willis G. Tucker ('70), New York. *Treasurer*—Dr. G. L. Ullman ('71), New York. *Executive Committee*—Drs. H. D. Didama, ('46); William S. Going, ('41); James H. Scoon, ('49); James G. Bailey, ('53); M. H. Burton, ('53); Jno. H. Hill, ('53); Chas. H. Burbeck, ('59); A. P. Ten Eyck, ('66); J. H. Blatner, ('72); Oscar Myers, ('73).

The address of the retiring President, Prof. Didama, of the Syracuse University, was listened to with much interest. In the evening, the Association partook of its annual supper at the Delavan House, about one hundred and forty graduates being present.

Chicago Mortality Report for December, 1874. Reported by Dr. BEN. C. MILLER, Sanitary Superintendent.

Accident, crushed	1	Heart, disease of	5
" by chloroform	1	" organic disease of	1
" by explosion	1	" hypertrophy of	2
" by burns	1	" mitral valves, disease of	1
" by fall	5	" malformation of	1
" fracture of skull	1	" valvular disease of	5
" by suffocation	1	Hemiplegia	1
" by scalding	4	Hemorrhage, cerebral	1
" by railroad	2	Hernia, inguinal	1
" by street cars	1	" incarcerated	1
Anæmia	1	Hydrophobia	1
Apoplexy	7	Hydrocephalus	5
Asphyxia	1	Inanition	11
Asthma	4	Inflammation following surg. op'r'n.	1
Ascitis	2	Intemperance	2
Bowels, congestion of	1	Intussusception	2
" hemorrhage of	1	Jaundice	1
Brain, congestion of	7	Kidneys, Bright's disease of	5
" disease of	1	" inflammation of	1
" inflammation of	7	Liver, disease of	3
Bronchitis	12	" cirrhosis of	2
Bronchitis, capillary	2	" tumor of	1
Cancer	2	" stricture of	1
" of bowels	1	Lungs, abscess of	1
" of jaw bone	1	" congestion of	5
" of stomach	2	" paralysis of	1
" of uterus	1	Malformation	2
Cholera infantum	1	Meningitis	3
Consumption	54	" cerebro-spinal	5
Convulsions	55	" tubercular	2
" uræmic	1	Œdema, pulmonum	1
Croup	12	Old age	11
" membranous	5	Paralysis	4
Debility, general	4	Peritonitis	8
Delirium tremens	4	" puerperal	1
Diarrhœa	3	Pneumonia	31
" chronic	1	" typhoid	2
Diphtheria	7	Pleurisy	1
Dropsy, general	8	Pyæmia	2
" pericardium	1	Sarcoma of thigh	1
Dysentery	2	Scurvy	1
Embolism	1	Septicæmia	1
Endo carditis	1	Spleen, liver & lungs, congest'n of	1
Enteritis	15	Stone in bladder	1
Entero-colitis	1	Strangulation	1
Encephaloid disease of lungs	1	Stomatitis	1
Erysipelas	4	Syphilis	1
Exhaustion	1	Tabes mesenterica	7
Fever, puerperal	7	Uterus, hemorrhage of	2
" scarlet	7	Whooping cough	1
" " malignant	3	Suicide, by poison	2
" typhoid	21	" by cutting throat	1
Gangrene	1	" by morphine	1
Gastro enteritis	1		
Heart, aneurism of	1	Total	451

Premature births, 6; Still births, 56. Total, 62.

COMPARISON.

Deaths in December, 1874, 451; in November, 1874, 440. Increase, 11. Deaths in December, 1873, 566. Decrease, 115.

AGES.

Under one year	129	Thirty years to forty	49
One year to two	26	Forty " " fifty	39
Two years to three	19	Fifty " " sixty	35
Three " " four	12	Sixty " " seventy	20
Four " " five	6	Seventy " " eighty	16
Five " " ten	14	Eighty " " ninety	5
Ten " " twenty	16	Ninety " " one hundred	2
Twenty " " thirty	63	Total	451
Males	238	Colored	11
Females	213	White	440
Total	451	Total	451

Married, 175; Single, 276. Total, 451.

NATIVITIES.

Austria	2	Denmark	4	Norway	5
Bohemia	1	England	10	Scotland	4
Canada	4	Germany	74	Sweden	7
Native—Chicago	57	Holland	4	Switzerland	1
Foreign, "	126	Ireland	55	Wales 1 Unknown 7	8
U. States, other parts	88	Italy	1	Total	451

Deaths daily, 14¼. Mean thermometer, 33.4°. Rain fall, .63 inches.

MORTALITY BY WARDS.

Wards.	No. Deaths.	Pop. in 1874.	Percentage.
1	0	5,725	one death in
2	9	4,830	" " 537
3	14	14,861	" " 1,061
4	11	15,361	" " 1,397
5	18	20,078	" " 1,114
6	29	35,916	" " 1,238
7	29	31,722	" " 1,094
8	27	29,143	" " 1,075
9	33	31,654	" " 959
10	17	17,385	" " 1,023
11	15	14,022	" " 935
12	16	16,792	" " 1,050
13	14	17,892	" " 1,278
14	18	16,720	" " 929
15	57	45,545	" " 719
16	25	21,922	" " 877
17	23	20,777	" " 940
18	21	21,392	" " 1,319
19	1	4,677	" " 4,677
20	10	8,995	" " 900
	387	Ratio of deaths to population in 1874, one death in 870⅛.	

No. deaths in Wards	387	Mercy Hospital	5
Accidents	18	Police Station	1
Bridewell	1	St. Joseph's Hospital	3
Alexian Bros. Hospital	6	St. Luke's Hospital	3
County Hospital	4	On cars	1
Foundlings' Home	15	Suicides	4
Hahnemann Hospital	1	Total	451
Home for Friendless	1		
Hospital for Women and Child'n.	1		

MORTALITY REPORT, CITY OF CHICAGO, FOR THE YEAR 1874.

Wards, 1874.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	Population, 1874.	One Death in	Deaths in 1,000 Population.
1	1	4	4	4	1	..	1	4	4	6	5	..	34	5,725	168 1-3	5.94
2	4	3	4	3	2	3	6	8	4	1	1	9	48	4,830	100 3-5	9.93
3	15	18	26	33	15	16	27	34	27	13	15	14	253	14,861	58 2-5	17.02
4	12	10	10	10	7	8	16	20	23	10	14	11	151	15,361	101 4-5	9.83
5	19	11	21	17	19	13	32	40	16	26	18	18	250	20,078	80 1-3	12.45
6	51	57	39	53	38	41	132	126	91	47	47	29	751	35,916	47 5-6	20.91
7	41	40	39	43	32	61	185	149	70	59	35	29	783	31,722	40 1-2	24.68
8	30	30	35	21	32	47	138	119	72	48	28	27	627	29,143	46 1-2	21.51
9	38	26	40	24	36	42	110	75	45	29	34	33	532	31,654	59 1-2	16.80
10	16	14	21	13	13	9	27	26	11	12	11	17	190	17,385	91 3-5	10.93
11	18	18	19	11	11	11	29	32	18	11	9	15	202	14,022	69 4-7	14.40
12	16	11	11	15	17	12	45	40	21	24	11	16	239	16,792	70 1-4	14.10
13	19	20	18	13	9	8	39	28	28	13	14	14	223	17,892	80 1-4	12.52
14	16	11	14	13	19	11	41	41	18	24	12	18	238	16,720	70 1-4	14.20
15	87	52	62	35	64	75	234	169	129	65	59	57	1,088	45,545	41 9-10	23.91
16	34	32	24	34	43	37	94	68	59	40	23	25	513	21,922	42 3-4	23.31
17	35	21	28	22	28	26	68	72	42	36	17	23	418	20,778	49 2-3	20.12
18	29	23	24	30	33	16	82	65	41	20	21	21	405	21,392	52 3-4	18.93
19	2	6	3	3	4	1	15	7	7	4	4	1	57	4,677	82	12.20
20	11	7	11	7	11	3	22	15	6	10	7	10	120	8,995	75	13.33
.....	494	414	453	404	434	440	1,343	1,138	732	498	385	387	7,122	395,409	.....	.....
Deaths by accidents, exclusive of Ward mortality.													874	.....	.....	.....
Reports received after the monthly mortality report was made out													29	.....	.....	.....
Total.....													8,025	.....	.....	.....

Average death percentage by Wards, one death in 55 2-5. Death rate exclusive of Wards, by accidents, etc., one death in 452 2-5. Ratio of deaths, all told, one in 50 1-13, or 20.29 in 1,000.

LIST OF ADVERTISERS.

APPLETON, D. & CO., N. Y. Medical Journal, and Popular Science Monthly.

ANTHONY, E. & H. T. & CO., Albums and Stereoscopes.

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CASWELL, HAZARD & CO., Cod Liver Oil.

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GRIFFIN, E. L., M.D., Animal Vaccine Virus.

KIDDER, Dr. JEROME, Electro-Medical Apparatus.

KEEN, COOKE & CO., Medical Publications, and Swing's Sermons.

McINTOSH'S NATURAL UTERINE SUPPORTER CO.

MERRIAM, G. & C., Webster's Quarto Dictionary.

PLANTEN & SON, Capsules.

PARKE, DAVIS & CO., Fluid Extracts and Chemicals.

RUSH MEDICAL COLLEGE, Chicago.

REED & CARNRICK, Lactopeptine.

SARGENT, E. H., Surgical Instruments, etc.

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11.	Dickson. Medicine in Relation to Mind	3 50
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13.	Fenwick's Guide to Medical Diagnosis	2 25
14.	Fox. Diseases of the Stomach	2 00
15.	Flint's Physiology of Man. Vol. 5th. (Generation)	4 50
16.	Flint's Medical Essays	1 38
17.	Gunn, on Venereal Diseases	2 25
18.	Hamilton's Clinical Electro-Therapeutics	2 00
19.	Hammond. Clinical Lectures on Diseases of the Nervous System	3 50
20.	Hartshornes. Anatomy and Physiology	1 75
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22.	Howe, on Breath	1 00
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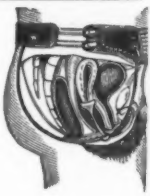

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We beg to call the attention of Physicians to our superior advantages in filling their orders. *Manufacturing* largely, it is our aim and object to be unsurpassed by any *House* in the *Northwest.* By paying particular attention to the quality of our goods, we feel confident of pleasing all who entrust us with their orders.

☞ Orders can be sent by *Express* to any part of the country at a trifling expense.

TO THE MEDICAL PROFESSION.

A NEW AND IMPORTANT REMEDY.

LACTOPEPTINE.

LACTOPEPTINE contains all the agents of digestion that act upon food. from mastication to its conversion into chyle.

Its digestive power is from three to four times that of Pepsin (described in the "United States Dispensatory," page 1685,) and has the all important advantage of dissolving all aliment used by mankind, while Pepsin acts only upon food of a plastic nature.

PEPSIN is, therefore, not indicated in a very large class of Dyspeptic cases, while **LACTOPEPTINE,** *containing all the digestive agents found in the system, and capable of dissolving all kinds of food, cannot be administered in cases of genuine dyspepsia without producing beneficial results.*

R. & C. N.Y.
LACTOPEPTINE
DOSE:
Three to Five Grains after Each Meal.
LACTOPEPTINE contains the five active agents of digestion—Pepsin, Ptyalin, Pancreatine Lactic Acid and Hydrochloric Acid—combined in the same proportion as they exist in the human system. One drachm will digest from 12 to 15 drachms of albumen or any kind of cooked food.
LACTOPEPTINE will be found far superior to all other remedies in Dyspepsia and kindred diseases.
Also, particularly indicated in Anemia, General Debility, Chronic Diarrhœa, Constipation, Headache, and Depraved Condition of the Blood resulting from imperfect digestion.
REED & CARNRICK
Pharmacists,
NEW YORK.

FORMULA OF LACTOPEPTINE.

Sugar of Milk,	*20 Ounces.*	*Ptyalin or Diastase,*	*1 Drachm.*
Pepsin (pure)	*4* "	*Lactic Acid,*	*2½ fl. Drachms.*
Pancreatine (pure),	*3* "	*Hydrochloric Acid,*	*2½ fl.* "

Powder and Mix.

The real merits of this preparation are shown from the fact that thousands of physicians during the past six months have tested it in their practice, a very large number of whom have written us, and, without a single exception, have spoken of its value in the highest terms.

The digestive power of LACTOPEPTINE is invariably tested, so as always to insure perfect uniformity.

LACTOPEPTINE, as well as all other preparations of our manufacture, is prepared strictly for the use of the Medical Profession, and is kept invariably in their hands.

One ounce sent by mail, pre-paid, on receipt of	$1 00
One pound " " " " "	13 00

A fraction of an ounce or pound sent by mail on receipt of corresponding price.

OVER.

REED & CARNRICK

Manufacture a Full Line of Fluid Extracts.

Description of the Component Parts of LACTOPEPTINE.

PEPSIN is one of the principle agents of digestion found in the gastric juice, and in conjunction with acid matter present in that secretion, will convert Albumen, Fibrin, Cassein, &c., into Peptone.

PTYALIN is the digestive principle of saliva. It has, until quite recently, been used but little medicinally, yet it is unquestionably one of the most important agents of digestion. It acts powerfully upon vegetable matter, by separating and dissolving the nutritious portion. One part of Ptyalin will separate the Dextrine and Glucose from 2,000 parts of Starch. There exists a principle in Malt, called Diastase, which is identical with Ptyalin.

PANCREATINE is secreted by the Pancreas. It acts immediately and powerfully upon Oily and Fatty substances, emulsionizing and preparing them for assimilation. It also has the power of digesting all kinds of food, and has undoubtedly been given this property so as to act upon any matter that may pass the Pylorus imperfectly digested.

LACTIC and HYDROCHLORIC ACIDS are always found in the gastric juice, and their importance is shown from the fact that Pepsin will not change the character of the food without their presence.

LACTOPEPTINE is presented in a saccharated form, and will be readily taken by the youngest child.

It is used with positive results in all cases of Dyspepsia, Loss of Appetite, Diarrhœa, Vomiting, Impoverished Blood, General Debility, Constipation, and all diseases arising from imperfect nutrition.

TO TEST THE DIGESTIVE POWER OF LACTOPEPTINE.

To two fluid ounces of water, add one drachm of Lactopeptine, half drachm of Hydrochloric or Lactic Acid, 15 drachms of cooked food (reduced to a pulpy consistency), allowing it to remain from two to six hours, occasionally agitated and heated to a temperature of 105 deg.

It is prepared in the form of POWDER, SUGAR-COATED PILLS, ELIXIR, SYRUP, WINE and TROCHES.

LACTOPEPTINE is also combined with the following preparations:—

Emulsion of Cod Liver Oil with Lactopeptine.

This combination will be found superior to all other forms of Cod Liver Oil, in affections of the Lungs and other wasting diseases. Used in Coughs, Colds, Consumption, Rickets, Constipation, Skin Diseases and Loss of Appetite.

Private Formulas of Pills, or other Preparations Made to Order.

REED & CARNRICK

Manufacture a Full Line of Sugar-Coated Pills.

Elixir Lactopeptine, Strychnia and Bismuth.

A valuable combination in cases of Dyspepsia, attended with Nervous Debility.

Elixir Calisaya Bark and Iron with Lactopeptine.

An elegant and reliable Remedy in cases of Dyspepsia, attended with General Debility.

Syrup Lactopeptine Co.

Each ounce contains 24 grains Lactopeptine, 8 grains Phosphate of Iron, 8 grains Phosphate Lime, 8 grains Phosphate Soda, and 8 grains Phosphate Potash.

This preparation will be found well suited to cases of General Debility, arising from impaired digestion, and also of great value in Pulmonary affections.

ELIXIR CALISAYA, IRON AND BISMUTH, WITH LACTOPEPTINE.	ELIXIR GENTIAN & CHLORIDE OF IRON, WITH LACTOPEPTINE.
WINE OF CALISAYA, WITH LACTOPEPTINE.	ELIXIR PHOSPHATE IRON, QUINIA AND STRYCH. WITH LACTOPEPTINE.
SYRUP PHOSPHATE IRON, QUINIA and STRYCH. WITH LACTOPEPTINE.	SYRUP PHOSPHATE IRON AND LIME, WITH LACTOPEPTINE.
ELIXIR STILLINGIA CO. WITH LACTOPEPTINE.	ELIXIR CALISAYA, WITH LACTOPEPTINE.
SYRUP IODIDE CALCIUM AND IRON, WITH LACTOPEPTINE.	BEEF, IRON AND WINE, WITH LACTOPEPTINE.
ELIXIR CINCHONA, IRON & STRYCHNIA, WITH LACTOPEPTINE.	LACTOPEPTINE EMULSION SUPERIOR TO PANCREATIC EMULSION.

Compound Cathartic Elixir.

(Formula given on Label and Dose Book.)

The only pleasant and reliable Cathartic, in liquid form, that can be prescribed It will be readily taken by the youngest child, and by all those who cannot take Cathartic remedies in other forms.

ELIXIR GUARANA.

Highly recommended in Sick Headache. Also valuable in Diarrhœa and Dysentery.

All our Goods are of Guaranteed Strength and Uniformity.

REED & CARNRICK

Manufacture a Full Line of Elixirs, Syrups, Wine, etc.

ANTI-CONSTIPATION PILL.

Juglandin, ¼ gr. Leptandrin, ¼ gr.
Strychnia, 1-200 " Henbane, ⅛ "
Castile Soap and Oil Peppermint, Q. S.

Dose, one to four.

This Pill gives permanent relief in cases of CONSTIPATION of the bowels.

Price, 70 Cents per hundred.

Sent by mail, pre-paid, on receipt of price.

STRYCHNIA COMPOUND PILL.

Strychnia,	1-100 grain.
Phosphorus,	1-100 "
Ex. Cannabis Indica,	1-16 "
Ginseng,	1 "
Carb. Iron,	1 "

Dose, one to two.

A reliable and efficient Pill in Anaphrodisia, Paralysis, Neuralgia, Loss of Memory, Phthisis and all affections of the Brain resulting from Loss of Nerve Power.

Price, 80 Cents per hundred,

Sent by mail, pre-paid, on receipt of price.

SULPHATE CINCHONIDIA PILL.

Recommended by many physicians as being fully equal to Quinine in Malarious Diseases.

Prices per Hundred.

1 grain	$ 60
2 "	1 10
3 "	1 60

Sent by mail, pre-paid, on receipt of price.

SEDATIVE PILL (Dr. Aikens).

Aconitin Sulph	1-200 grain.
Gelseminin	1-20 "
Digitalin	1-200 "
Sulph. Veratria	1-100 "
Ex. Henbane	1-16 "

Price, $1 00 per hundred,

Sent by mail, pre-paid, on receipt of price.

PEPSIN—PANCREATINE—DIASTASE.

In addition to **Lactopeptine,** we manufacture PEPSIN, PANCREATINE and PTYALIN or DIASTASE. They are put up separately in one ounce and pound bottles.

Ten grains of our *Pepsin* will digest 200 grains of Albumen.

One grain of our *Ptyalin* or *Diastase* will digest 300 grains of vegetable food.

Ten grains of our *Pancreatine* will emulsionize one ounce of oil.

One ounce of Pepsin sent by mail on receipt of 84 cents. One ounce of Pancreatine or Ptyalin, sent by mail upon receipt of $1 00.

Send for PRICE LISTS and DOSE BOOKS.

Respectfully,

REED & CARNRICK, Manufacturing Pharmacists,

198 FULTON STREET, NEW YORK.

Correspondence Solicited from Physicians & Druggists.

PARIS, 1867 | 1868. | 1872. | 1873, VIENNA.

Prize Medal. | Silver Medal. | Gold Medal. | Medal of Merit.

BOUDAULT'S PEPSINE,

And Wine, Elixir, Syrup, Pills and Lozenges of Pepsine.

Since 1854, when Pepsine was first introduced by Messrs. CORVISART and BOUDAULT, **Boudault's Pepsine** has been the only preparation which has at all times given satisfactory results.

The medals obtained by **Boudault's Pepsine** at the different exhibitions of 1867, 1868, 1872, and recently at the Vienna Exhibition of 1873, are unquestionable proofs of **its excellence.**

In order to give physicians an opportunity to judge for themselves, all Boudault's Pepsine will hereafter be accompanied by a circular giving plain directions for testing it. These tests will enable any one to satisfy himself of the **superiority of Boudault's Pepsine,** which is really the *cheapest*, since its use will not subject physicians and patients alike to disappointment.

CAUTION.—In order to guard against imitations each bottle will hereafter be sealed by a red metallic capsule, bearing the stamp of our trade mark, and secured by a band having a fac-simile of the medals, and the signature of Hottot, the manufacturer.

Is sold in 1 oz., 8 oz, 16 oz., Bottles.

E. FOUGERA & CO., New York,

GENERAL AGENTS FOR THE U. S.

Kirkwood's Inhaler.

Medal of Honor awarded at the Maryland Institute.

The cheapest, cleanest, and only complete, reliable, and effective inhaler in use, arranged for the direct application of medicines in the form of the finest vapor to the diseased parts of the air passages in the treatment of catarrh and diseases of the throat and lungs. No heat or warm liquids required in its use.

In purchasing medical instruments, the best should be selected, and persons should beware of the various frail, cheap, unreliable, ineffective instruments for inhalation that have been introduced.

Kirkwood's Inhaler is accompanied by testimonials of the highest professional character, and certificates of patients who have been cured of chronic catarrhal and laryngeal diseases by its use, together with carefully prepared formula for preparing the instrument. The inhaling tube is provided with an air valve, so that no impure air can pass into the apparatus, thus insuring safety at all times.

E. FOUGERA & CO., Manufacturers,

NEW YORK.

FOUGERA'S
Compound Iceland Moss Paste.

(Iceland Moss, Lactucarium, Ipecac, and Tolu.)

Used with great success against nervous and convulsive coughs, Whooping-Cough, Acute Bronchitis, Chronic Catarrh, Influenza, &c.

Wakefulness, Cough and other sufferings in Consumption, are greatly relieved by the soothing and expectorant properties of this paste.

FOUGERA'S

IODO-FERRO-PHOSPHATED

ELIXIR OF HORSE-RADISH.

This Elixir contains Iodine, Pyrophosphate of Iron, the active principles of anti-scorbutic and aromatic plants, and acts as a *tonic*, *stimulant*, *emenagogue*, and a *powerful regenerator of the blood*. It is an invaluable remedy for all constitutional disorders due to the impurity and poverty of the blood. One of the advantages of this new preparation consists in combining the virtues of Iodine and Iron without the inky taste of Iodide of Iron.

FOUGERA'S VERMIFUGE.

(Compound Dragees of Santonine.)

Santonine, the active principle of *Semen contra*, (European Wormseed,) occupies the first rank among the anthelmintic remedies. In this preparation the Santonine is combined with a purgative agent under the form of a sugar-coated pill, and thus forms a pleasant and efficacious remedy, which has been used for many years. Each dragee contains one half grain of Santonine and one fifth grain of gambogine.

LANCELOT'S CIGARETTES,

FOR ASTHMA.

It suffices to *inhale* the smoke of these Cigarettes, to experience immediate relief.

All nervous affections in general, and especially those of the chest, are often cured, and always relieved by the use of Lancelot's Cigarettes.

PENNES' BATHS.

A substitute for sea and mineral baths. *Tonic*, *Stimulating* and *Resolvent*. Used by over one hundred physicians in the hospitals of Paris, in Skin Diseases, Nervous Affections, Anœmia, Chlorosis, Gout, Rheumatism, Sciatica, also in many complaints where a general external medication is desirable. Sold in rolls, one or more of which may be used in a bath.

INJECTION BROU.

This injection, approved by several academies of medicine, is well known for its sure and prompt action. It is used without any internal remedy, and is found effectual in curing cases, which resist all ordinary modes of medication.

E. FOUGERA & CO., New York.

FLUID EXTRACT

EUCALYPTUS.

Prepared from the Leaves of the Eucalyptus Globulus.

BY PARKE, DAVIS & CO., MANUFACTURING CHEMISTS, DETROIT.

We are now prepared to furnish the profession with a full supply of a reliable fluid extract of this valuable remedy.

"The *Eucalyptus globulus* belongs to the Natural Order *Myrtaceæ*, which furnishes the clove (*Caryophyllus aromaticus*), oil of cajeput (*Melaleuca minor*), and the pimento (*Eugenia Pimenta*). It is one of the noblest representatives of a genus that contains upwards of a hundred species. It is often gigantic in size, and is impregnated throughout with an aromatic substance, which is present, however, in smaller proportions in the wood and the bark than in the flowers and the leaves. The tree is easily acclimatized in the southern provinces of France, Corsica, Algiers and Spain, being known in the last named country under the popular name of the fever tree. * * *

PROPERTIES.—Moderate doses cause a disturbance of the digestion, sometimes succeeded by a diarrhœa in which the motions, like the eructations, recall the smell of the eucalyptus. Large doses sometimes cause headache, excitement and fever, with accelerated respiration, thirst, sickness and generally sleepiness; upon anæmic persons, however, it acts as a narcotic. The symptoms rarely last more than a few hours.

"In Australia the *Eucalyptus globulus* is the popular remedy for fevers, and in Europe it has been used successfully in the treatment of diseases prevalent in marshy districts. M. Gubler quotes the testimony of several medical practitioners, who say that it produces marvellous results in cases of intermittent fevers, especially obstinate ones where sulphate of quinine has been used without effect. * * —*Phar. Jour. and Trans., March* 2, 1872.

It has been recommended for, and used with marked success as a disinfectant in dressing wounds ulcers, purulent catarrhal affections of the urethra and vagina, fetid breadth, and as an astringent to harden spongy and bleeding gums.

THERAPEUTICAL APPLICATIONS OF EUCALYPTUS GLOBULUS.—At the last meeting of the San Francisco Medical Society, Dr. Pignedupuytren said he had used the eucalyptus in the French Hospital for a year, during which time many interesting results had been noted. In March last, a hundred of the small trees had been planted on the Hospital grounds. They had now reached the height of seven feet. He related the following cases:

"A man had arteritis of the leg, succeeded by gangrene, which extended so high up as to render amputation impossible. In two weeks a large ulcer resulted, whose odor was horribly fetid. Everything in turn was employed to destroy this odor, to no effect. At last a decoction of eucalyptus was resorted to, and, without exaggeration, in five minutes all fetor had disappeared. The decoction continued to be used with the same effect until death occurred, two or three weeks subsequently.

"Another man, who had been under treatment in the Hospital for two months, with extensive, deep ulcer from varix, of a year's duration, had the decoction applied to the ulcer three times a day, with remarkable effect. In five or six days the ulcer was entirely covered with healthy granulations, and in a month it was entirely well.

"A woman had been troubled for many months with an ulcer around the orifice of the urethra. It was cauterized five times with no result. After twelve days' use of the decoction of eucalyptus, washing thrice daily, it was well.

"Four cases of syphilitic chancres healed under the eucalyptus dressing in five or six days, without other treatment. These were very recent cases, or constitutional treatment would have been resorted to.

"He had but one case of intermittent fever to report. This had proved rebellious to quinia, and also to arsenic, which latter had been administered for two weeks. A three weeks' course of the eucalyptus cured entirely.

"So numerous were the cases of bronchitis cured with the drug, that it was hardly worth while to mention them." * * * —*Pacific Medical Journal.*

EUCALYPTUS GLOBULUS.—Dr. Wooster, M. D., of San Francisco, California, submits a report of 135 cases of various diseases treated exclusively with fluid extract of eucalyptus globulus. This preparation was made by Dr. Coleman, Resident Physician at the United States Marine Hospital.

Remittent fever: cases treated, 5; cured, 5. Intermittent fever: cases treated, 19; cured, 19. Typhoid fever: cases treated, 9; cured, 9. Nephritis: cases treated, 4; cured, 3; improved, 1. Diuresis: cases treated, 10; cured, 7; improved, Incontinence of urin: cases treated, 3; cured, 3. Vesical catarrh: cases treated, 27; cured, 25; improved, 2. Blennorrhagia: cases treated, 13; cured, 10; improved, 3. Valvular disease of heart: cases treated, 7; cured, 0; improved, 7. Dysentery: cases treated, 4; cured, 3; improved, 1. Chronic diarrhœa: cases treated, 13; cured, 9; improved, 4. Gonorrhœa (syphilitic): cases treated, 15; cured, 10; improved, 5. Dropsy: cases treated, 6; cured, 3; improved, 3. Of the whole number of cases, 106 were cured and 29 improved.

At a recent meeting of the San Francisco Medical Society, Dr. Stout exhibited an ingenious apparatus for the inhalation of medicated vapors. The medicated liquid is kept boiling by a spirit-lamp and the vapor conducted through a tube. He had used the *eucalyptus* in this way, employing the tincture in water. It was preferable to the common atomizer, because of the warm vapor, which is not only medicinal in itself, but promotive of absorption. The eucalyptus he had found very beneficial in bronchial and pulmonic affections.

Dr. Pignedupuytren testified to the virtues of the remedy, which had been fully tested by himself and Dr. D. Oliveira, in the French Hospital. It had been found highly serviceable in affections of the larynx and of mucous membrane in general; also as a tonic. In France it was much used as a febrifuge, and by some considered a substitute for cinchona. The leaves growing near the trunk of the tree were the most aromatic. A large number of the trees had been planted around the French Hospital, for sanitary and medicinal purposes. The leaves, in drying, emitted a large amount of balsamic exhalations, capable of causing headache in persons much exposed to them, as he had experienced in his own house.—*Pacific Medical and Surgical Journal.*

We prepare the following FLUID EXTRACTS directly from the GREEN ROOTS, and can recommend them to the profession as sure and uniform remedies:

FLUID EXTRACT GELSEMINUM.

FLUID EXTRACT VERATRUM VIRIDE.

FLUID EXTRACT COTTON ROOT BARK.

PEPSINE.

Under this head we offer three preparations, made by us directly from the stomach of the hog, whose habits and food render its pepsine peculiarly adapted to supply the needs of a weak digestive power in the man. Great care has been taken to issue uniform articles, which can be relied upon to produce their specific effects therapeutically.

DRY PEPSINE.

Prepared with sugar of milk to a fine powder, and assayed that five grains will digest, in an acidulated solution, sixty grains of coagulated albumen, in from four to six hours, which correspond to the digestive power of half an ounce of human gastric juice.

LIQUID PEPSINE.

Prepared with glycerine, for cases where it is necessary to prescribe in solution, or with the addition of other agents.

ESS. PEPSINE.

An agreeable solution of pepsine, where it is advisable to secure elegance in administration.

We desire to call the attention of physicians to our line of SOLUBLE SUGAR COATED PILLS, which is very complete, supplying every officinal or other reliable formula for pills, in an elegant form for administration. All materials are the purest attainable, and the pills themselves divided with great care by hand to ensure accuracy.

Having succeeded after a long experience and experiment, in manufacturing perfectly *soluble* pills, we would be pleased to have physicians test them on this point.

We add a few formulas of pepsine combinations from our list, some of which are new.

PIL OX GALL AND PEPSIN (ARMOR'S), 4 1-8 grs.

Socot Aloes. Ox Gall.
Sulphate Iron. Pepsin.
Ext. Nux Vomica.

PIL PEPSINE AND BISMUTH, 2 1-2 grs.

Pepsine 1 1-2 grs. Bismuth Subcarb 3-4 gr.
Lactic Acid 1-4 gr.

PIL PEPSINE AND IODIDE IRON, 3 grs.

Pepsine 1 1-2 gr. Iodide Iron 3-4 gr.
Iron by Hydrogen 1 1-2 gr.

PIL PEPSINE AND IRON BY HYDROGEN, 2 1-4 grs.

Pepsine 1 1-4 gr. Iron by Hydrogen 3-4 gr.

Send for a Description List of our manufactures, which will be mailed Gratis.

PARKE, DAVIS & CO.,

DETROIT.

MANUFACTURERS OF

Fluid and Solid Extracts, *Aqua Ammonia,*
Soluble Sugar Coated Pills, *Spirits Nitre Dulc.,*
Pharmaceutical Preparations, *C. P. Chloroform, &c.*

TO BE OBTAINED OF ANY PHARMACIST.

WHOLESALE AGENTS,

E. BURNHAM & SON,

CHICAGO, ILL.

PURE COD-LIVER OIL.

Manufactured on the Sea-Shore by HAZARD & CASWELL, from Fresh and Selected Livers.

The universal demand for an article of Cod-Liver Oil that could be depended upon as *strictly pure and scientifically prepared*, having been long felt by the Medical Profession, we were induced to undertake its manufacture at the *Fishing Stations*, where the fish are brought to land every few hours, and the livers consequently are in great perfection.

This Oil is manufactured *by us* on the sea-shore, with the greatest care, from fresh healthy livers of the Cod only, without the aid of any chemicals, by the simplest possible process and lowest temperature by which the Oil can be separated from the cells of the livers. It is nearly devoid of color, odor and flavor—having a bland, fish-like, and, to most persons, not unpleasant taste. It is so sweet and pure that it can be retained by the stomach when other kinds fail, and patients soon become fond of it.

The secret of making good Cod-Liver Oil lies in the proper application of the proper degree of heat; too much or too little will seriously injure the quality. Great attention to cleanliness is absolutely necessary to produce sweet Cod-Liver Oil. The rancid Oil generally found in market is the product of manufacturers who are careless about these matters.

Prof. Parker, of New York, says: "I have tried almost every other manufacturer's oil, and give yours the decided preference."

Prof. Hayes, State Assayer of Mass., after a full analysis of it, says: "It is the best for foreign or domestic use."

After years of experimenting, the Medical Profession of Europe and America, who have studied the effects of different Cod-Liver Oils, have unanimously decided the light straw-colored Cod-Liver Oil to be far superior to any of the brown Oils.

The Three Best Tonics of the Pharmacopœia: IRON—PHOSPHORUS—CALISAYA.

CASWELL, HAZARD & CO. also call the attention of the Profession to their preparation of the above estimable Tonics, as combined in their elegant and palatable **Ferro-Phosphorated Elixir of Calisaya Bark,** a combination of the Pyrophosphate of Iron and Calisaya never before attained, in which the nauseous inkiness of the Iron and astringency of the Calisaya are overcome, without any injury to their active tonic principles, and blended into a beautiful amber-colored Cordial, delicious to the taste, and acceptable to the most delicate stomach. This preparation is made directly from the **ROYAL CALISAYA BARK,** not from **ITS ALKALOIDS OR THEIR SALTS**—being unlike other preparations called "Elixir of Calisaya and Iron," which are simply an **Elixir of Quinine and Iron.** Our Elixir can be depended upon as being a true Elixir of Calisaya Bark with Iron. Each dessertspoonful contains seven and a half grains Royal Calisaya Bark, and two grains Pyrophosphate of Iron.

Ferro-Phosphorated Elixir of Calisaya Bark with Strychnia. This preparation contains one grain of Strychnia added to each pint of our Ferro-Phosphorated Elixir of Calisaya Bark, greatly intensifying its tonic effect.

Ferro-Phosphorated Elixir of Calisaya with Bismuth, containing eight grains Ammonio-Citrate of Bismuth in each tablespoonful of the Ferro-Phosphorated Elixir of Calisaya Bark.

Elixir Phosphate Iron, Quinine and Strychnia. Each teaspoonful contains one grain Phosphate Iron, one grain Phosphate Quinine, and one sixty-fourth of a grain of Strychnia.

Ferro-Phosphorated Elixir of Gentian, containing one ounce of Gentian, and one hundred and twenty-eight grains Pyrophosphate Iron to the pint, making in each dessertspoonful seven and one-half grains Gentian and two grains Pyrophosphate Iron.

Elixir Valerianate of Ammonia. Each teaspoonful contains two grains Valerianate Ammonia.

Elixir Valerinate of Ammonia and Quinine. Each teaspoonful contains two grains Valerinate Ammonia and one grain Quinine.

Ferro-Phosphorated Wine of Wild Cherry Bark. Each fluid-drachm contains twenty-five grains of the Bark, and two grains of Ferri-Pyrophosphate.

Wine of Pepsin. This article is prepared by us from fresh Rennets and pure Sherry Wine.

Elixir Taraxacum Comp. Each dessertspoonful contains fifteen grains of Taraxacum.

Elixir Pepsin, Bismuth and Strychnine. Each fluid-drachm contains one sixty-fourth of a grain of Strychnine.

Juniper Tar Soap. Highly recommended by the celebrated Erasmus Wilson, and has been found very serviceable in chronic eczema and diseases of the skin generally. It is invaluable for chapped hands and roughness of the skin caused by change of temperature. It is man ufactured by ourselves, from the purest materials, and is extensively and successfully prescribed by he most eminent Physicians.

Iodo-Ferrated Cod-Liver Oil. This combination holds sixteen grains Iodide of I ron to the ounce of our pure Cod-Liver Oil.

Cod-Liver Oil, with Iodine, Phosphorus and Bromine. This combination represents Phosphorus, Bromine, Iodine and Cod-Liver Oil, in a state of permanent combination, containing in each pint: Iodine, eight grains; Bromine, one grain; Phosphorus, one grain; Cod-Liver Oil, one pint.

Cod-Liver Oil, with Phosphate of Lime. This is an agreeable emulsion, holding hree grains Phosphate of Lime in each tablespoonful.

Cod-Liver Oil, with Lacto-Phosphate of Lime.

CASWELL, HAZARD & CO.,

DRUGGISTS AND CHEMISTS,

NEW YORK.

Parke, Davis & Co.,

Manufacturing Chemists,

DETROIT,

MANUFACTURERS OF

Fluid & Solid Extracts, | **Elixirs, Wines & Syrups,**
Sugar Coated Pills, | **Aqua Ammoniæ,**
Pure Concentrations, | **Spirits Nitre Dulc.,**
Chem. Pure Chloroform, Chemicals, &c., &c.

We call special attention to the following articles lately added to our list:

Fluid Extract Guarana.
Fluid Extract Eucalyptus Globulus.
Fluid Extract Bearsfoot, (from the fresh root.)
Fluid Extract Calendula.
Fluid Extract Chestnut Leaves.
Fluid Extract Conium Seed.
Fluid Extract Cotton Root Bark, (from the fresh root.)
Fluid Extract Gelseminum, (from the fresh root.)
Fluid Extract Stavesacre Seed.
Pills of Picrate Ammonium. (Sugar Coated.)
Brundage's Anti-Constipation Pills. (Sugar Coated.)

Send for dose, descriptive list and circulars, which will be forwarded on application.

Physicans who desire our preparations will please specify P., D. & Co. on their prescriptions.

Our list of manufactures can be obtained of the following Wholesale Druggists, at manufacturer's rates:

R. Macready & Co.,	Cincinnati, O.
Kenyon, Potter & Co.,	Syracuse, N. Y.
Geo. A. Kelly & Co.,	Pittsburg, Pa.
Benton, Myers & Canfield,	Cleveland, O.
Geo. M. Dixon,	Dayton, O.
A. Peter & Co.,	Louisville, Ky.
E. Burnham, Son & Co.,	Chicago, Ill.
A. A. Mellier,	St. Louis, Mo.
Colburn, Birks & Co.,	Peoria, Ill.
Geo. A. Eddy,	Leavenworth, Kan.
Godbe & Co.,	Salt Lake City, Utah.
Plain, Williams & Co.,	Toledo, O.
Shrewsbury Bros.,	Parkersburg, W. Va.
Farrand, Williams & Co.,	Detroit, Mich.
Swift & Dodds,	Detroit, Mich.

Depot in Chicago,

E. Burnham, Son & Co.